FEDERAL - STATE - PRIVATE

COOPERATIVE

SNOW SURVEY and WATER SUPPLY FORECASTS for OREGON

UNITED STATES DEPARTMENT of AGRICULTURE···SOIL CONSERVATION SERVICE

and

OREGON AGRICULTURAL EXPERIMENT STATION

and

STATE ENGINEER of OREGON

Data included in this report were obtained by the agencies named above in cooperation with other Federal, State and private organizations.

AS OF

MAR. 1, 1961

USDA-SCS-PORTLAND, OREG. 1960

UNITED STATES DEPARTMENT OF AGRICULTURE - SOIL CONSERVATION SERVICE

To Recipients of Cooperative Snow Survey and Water Supply Forecast Reports:

The climate of the cultivated and populated areas of the West is characterized by relatively dry summer months. Such precipitation as occurs falls mostly in the winter and early spring months when it is of little immediate benefit to growing crops. Fortunately, most of this precipitation falls as mountain snow which stays on the ground for months, melting later to sustain streamflow during the period of greatest demand during late spring and summer. Thus, nature provides in mountain snow an imposing water storage facility.

The amount of water stored in mountain snow varies from place to place as well as from year to year and accordingly, so does the runoff of the streams. The best seasonal management of variable western water supplies results from fore-knowledge of the runoff.

A snow survey consists of a series of about ten samples taken with specially designed snow sampling equipment along a permanently marked line, about 1000 feet in length, called a snow course. The use of snow sampling equipment provides snow depth and water equivalent values for each sampling point. The average of these values is reported as the snow survey measurement for a snow course.

Snow surveys are made monthly or semi-monthly beginning in January or February and continue through the snow season until April, May or June. Currently more than 1400 western snow courses are measured each year. These measurements furnish the key data for water supply forecasts.

By relating snow survey measurements taken over a period of years to spring-summer runoff during the same period, relationships have been developed which make it possible to forecast seasonal runoff several months in advance of occurrence. In order to make a forecast, once a forecast relationship has been developed, the maximum snow water content at previously selected key snow courses is usually entered in the forecast relationship. More accurate forecasts are often obtained when other factors such as soil moisture, base flow and spring precipitation are considered and included in the forecast relationships.

Listed below are the Federal-State-Private Cooperative Snow Survey and Water Supply Forecast reports available for the West which contain detailed information on snow survey measurements, streamflow forecasts, reservoir storage, soil moisture and other guide data to water management and conservation decisions.

PUBLISHED BY SOIL CONSERVATION SERVICE

REPORTS	ISSUED	LOCATION	COOPERATING WITH
RIVER BASINS			
Colorado and State of Utah	Monthly (Jan.-May)	Salt Lake City, Utah	Utah State Engineer and Other Agencies
Columbia	Monthly (Jan.-May)	Boise, Idaho	Idaho State Reclamation Engineer
Upper Missouri and State of Montana	Monthly (Feb.-May)	Bozeman, Montana	Mont. Agr. Exp. Station
West-Wide	Oct. 1, Apr. 1, May 1	Portland, Oregon	All Cooperators
STATES			
Alaska	Monthly (Mar.-May)	Palmer, Alaska	Alaska S.C.D.
Arizona	Semi-Monthly (Jan. 15 - Apr. 1)	Phoenix, Arizona	Salt R. Valley Water Users Assoc. Ariz. Agr. Exp. Station
Colorado and New Mexico	Monthly (Feb.-May)	Fort Collins, Colorado	Colo. Agr. Exp. Station Colo. State Engineer N. Mex. State Engineer
Idaho	Monthly (Feb.-May)	Boise, Idaho	Idaho State Reclamation Engineer
Nevada	Monthly (Feb.-Apr.)	Reno, Nevada	Nevada Dept. of Conservation and Natural Resources - Division of Water Resources
Oregon	Monthly (Jan.-May)	Portland, Oregon	Ore. Agr. Exp. Station Oregon State Engineer
Washington	Monthly (Feb.-May)	Spokane, Washington	Wn. State Dept. of Conservation
Wyoming	Monthly (Feb.-June)	Casper, Wyoming	Wyoming State Engineer

Copies of these various reports may be secured from: Head, Water Supply Forecasting Section
Soil Conservation Service
209 S. W. Fifth Ave., Portland 4, Oregon

PUBLISHED BY OTHER AGENCIES

REPORTS	ISSUED	AGENCY
British Columbia	Monthly (Feb.-June)	Comptroller, Water Rights Br., Dept. of Lands and Forests, Parliament Blog., Victoria, B.C., Canada
California	Monthly (Feb.-May)	Calif. Dept. of Water Resources, Sacramento, Calif.

FEDERAL - STATE - PRIVATE

COOPERATIVE

SNOW SURVEY and WATER SUPPLY FORECASTS for OREGON

ISSUED

MARCH 8, 1961

Report prepared by

W. T. FROST, Snow Survey Supervisor

and

BOB L. WHALEY, Assistant Snow Survey Supervisor

SOIL CONSERVATION SERVICE
209 S.W. 5TH AVE., PORTLAND 4, OREGON

Issued by

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EXPERIMENT STATION

LEWIS A. STANLEY
STATE ENGINEER
STATE OF OREGON

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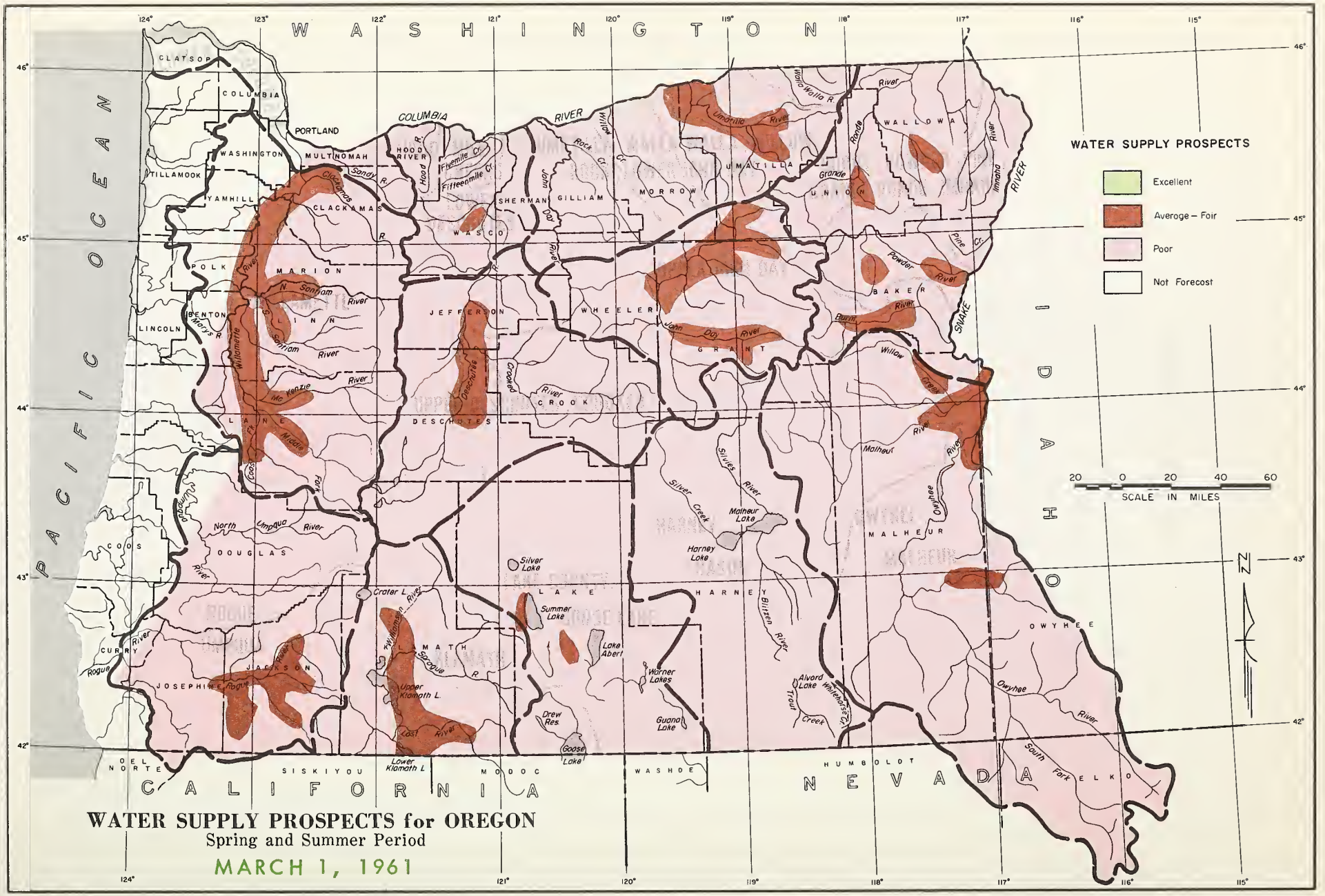
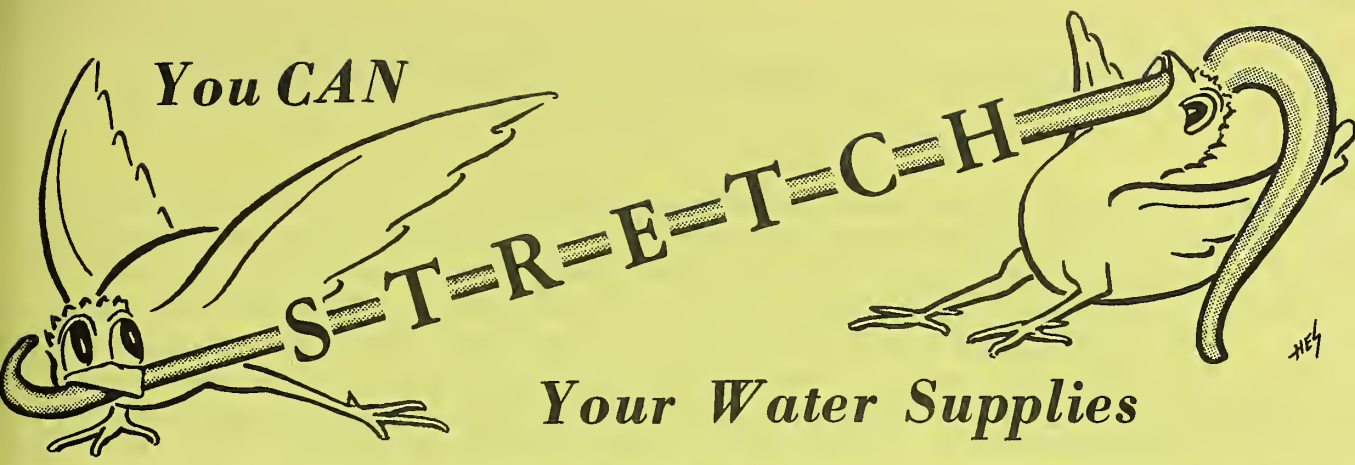


WATER SUPPLY PROSPECTS for OREGON

Spring and Summer Period

MARCH 1, 1961



Your Water Supplies

Now that you know irrigation water supplies are apt to be "short" this spring and summer --
What can YOU do to get the most good from a "short" supply?

Some Suggestions Are:

A. PLAN YOUR WATER USE -- FIELD by FIELD

- Rid your ditches of all silt and excess plant growth that may "rob" you of your water.
- Give special attention to ditch sections where greatest water losses occur--line the ditch if possible.
- Shorten water runs where possible.
- Don't irrigate unless a soil moisture check indicates the need.

B. TIME YOUR WATER USE -- AVOID WASTE

- Check moisture penetration during irrigation to determine when adequate water has been applied--use soil auger or shovel.
- Shift your water to the next set as soon as penetration is satisfactory to meet the needs of the crop.
- Avoid over use of water--too much soil moisture may injure rather than benefit the crop.

C. CONCENTRATE YOUR WATER ON MOST PRODUCTIVE LAND

- If water supply is "too short" to do the whole job--use it only on the best land where you will get the best crop.
- Concentrate your water on your best pasture acres and let only the poor pasture go dry.
- CONSIDER PLANTING CROPS WHICH REQUIRE LEAST WATER TO MATURE.

See your --

IRRIGATION DISTRICT MANAGER
SOIL CONSERVATION SERVICE TECHNICIAN
COUNTY EXTENSION AGENT

-- and S-T-R-E-T-C-H your water supply!

U. S. DEPARTMENT OF AGRICULTURE, SOIL CONSERVATION SERVICE

USDA-SCS PORTLAND, OREG. 1951

WATER SUPPLY OUTLOOK for OREGON

MARCH 1, 1961

Oregon's 1961 water supply outlook for the spring and summer months remains "fair" to "poor" in spite of a wet, warm February which raised the hopes of many an Oregonian but the water "picture" has not improved. The water outlook, in fact, is still more "gloomy" than a month ago and indicates "shorter" water supplies than last year in many areas. Reservoired water supplies, severely curtailed by lack of carry-over from last year's dry season, improved greatly in some areas but remain inadequate in most parts of the state.

SNOW COVER:

Water content of the mountain snowpack in Oregon is extremely low this year, averaging 50 percent of the 1943-57 period, the lowest it has averaged over the state since 1934. The snow in 1959 was nearly as "short", averaging only 52 percent. This year's snowpack is highest (74 percent average) in the Wallowa region and lowest (36 percent average) in the Willamette watershed.

Since March storms usually add only 14 percent to the mountain snowpack, it seems likely that the 1961 pack will reach its peak accumulation at about 65 percent or only two-thirds of a normal "snow crop".

RESERVOIR STORAGE:

Total water stored in 22 important irrigation reservoirs in the state averages 106 percent of last year as of March 1st but only 75 percent of the 1943-57 average.

STREAMFLOW:

Forecasts of streamflow for the coming irrigation season (April through September) indicate poorer flows than in 1960 in most areas of the state.

Forecasted water runoff varies from 21 percent average for Drew Reservoir inflow and 23 percent average on the Owyhee River to 89 percent on two tributaries of the Wallowa River. Most critical situations are the streams flowing into Ochoco, Drew, Owyhee, McKay, Hyatt, Clear Lake and Gerber Reservoirs and the flow of Crooked and Silvies River. Predictions for these fall below 50 percent of average.

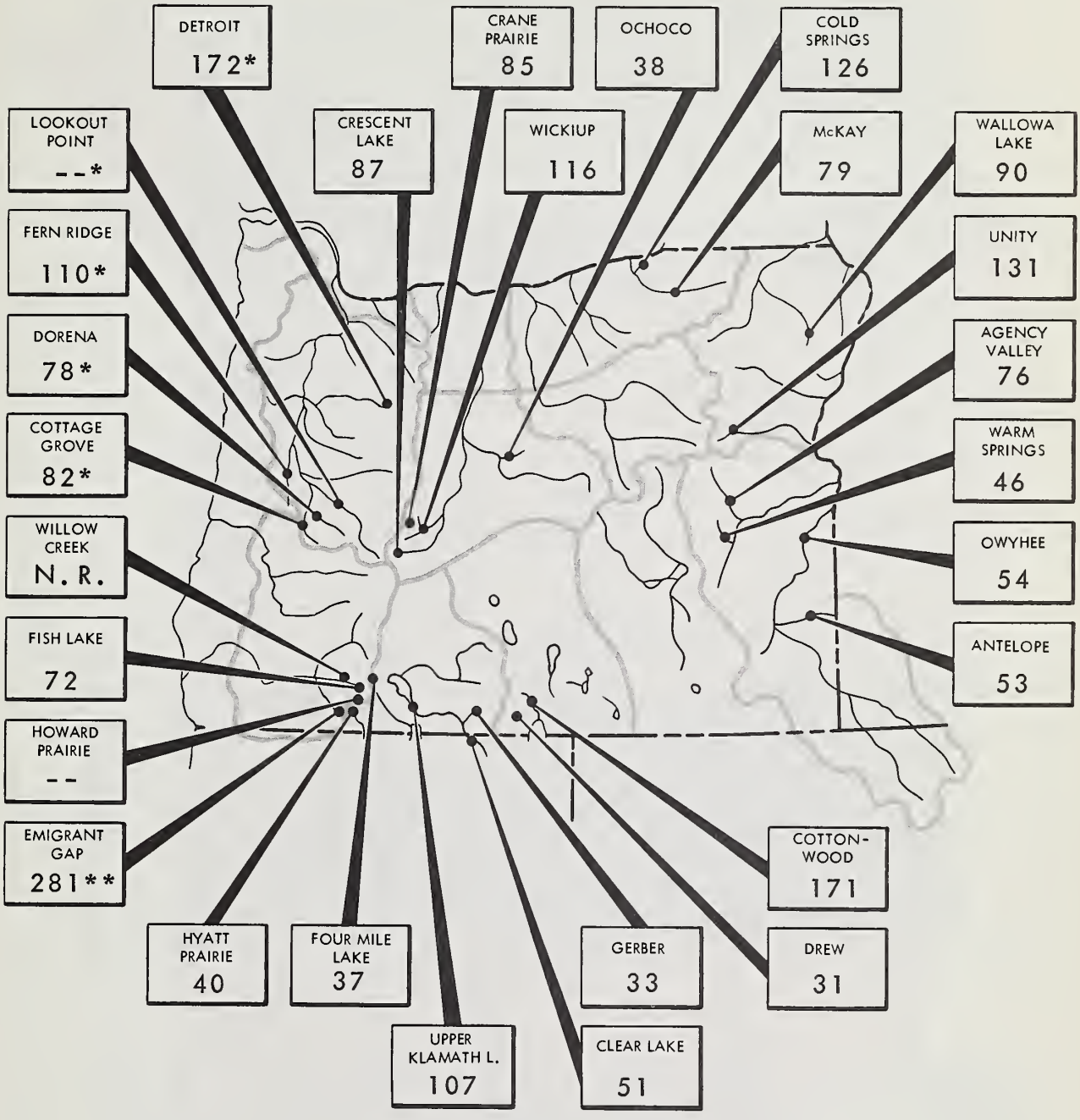
Many small streams over the state will produce barely enough water for one irrigation this year.

February streamflow* averaged between 68 percent on the Owyhee and 198 percent on Hood River.

*Preliminary data furnished by U.S. Geological Survey, Portland, Oregon

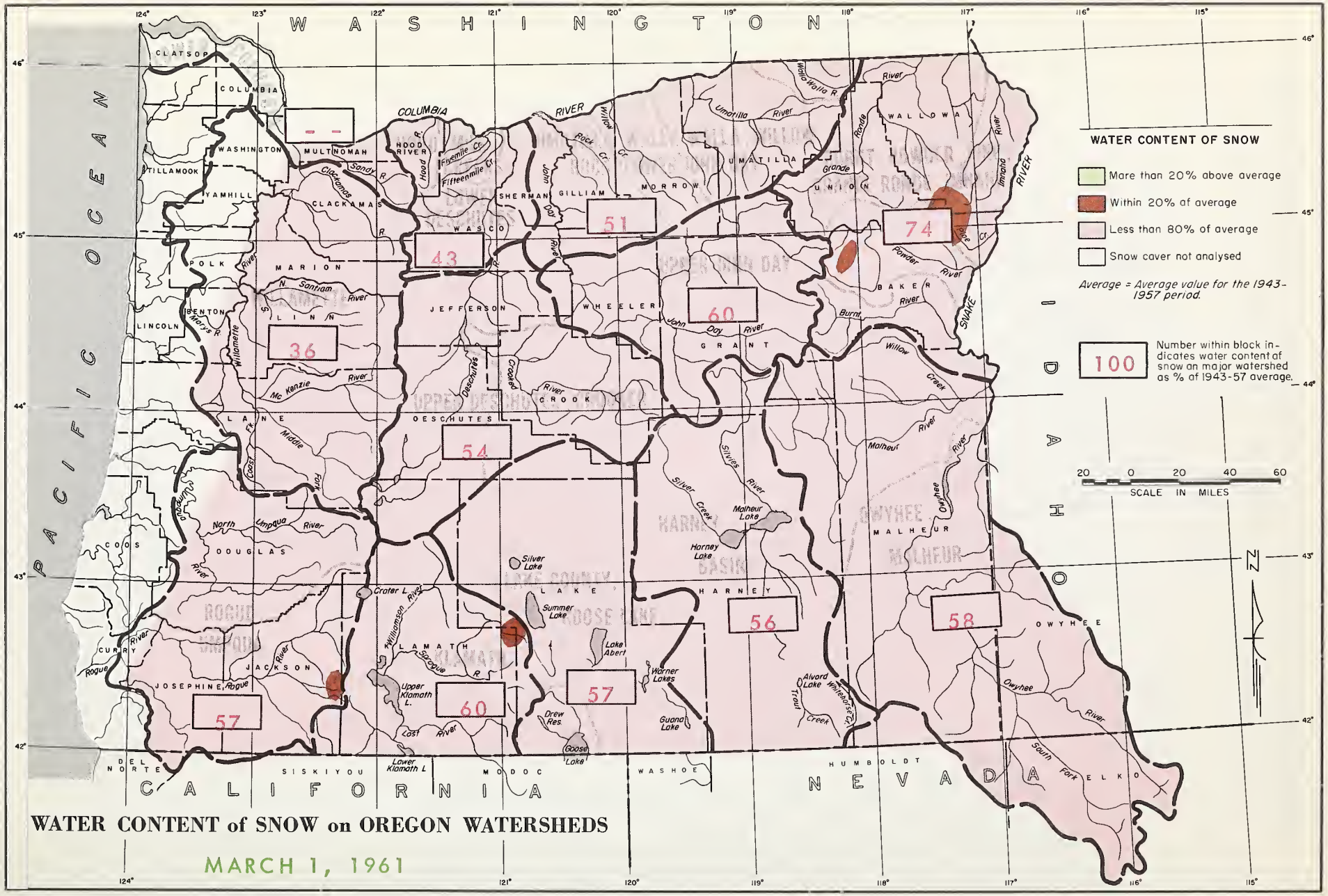
STORAGE STATUS of OREGON RESERVOIRS as percent of 1943-57, 15 year average

MARCH 1, 1961



*- *Multiple purpose reservoir - space reserved primarily for flood runoff.*
N.R. - *No report.*

** - Capacity of reservoir greatly increased but current storage compared with previous average.



WATER CONTENT of SNOW on OREGON WATERSHEDS

MARCH 1, 1961

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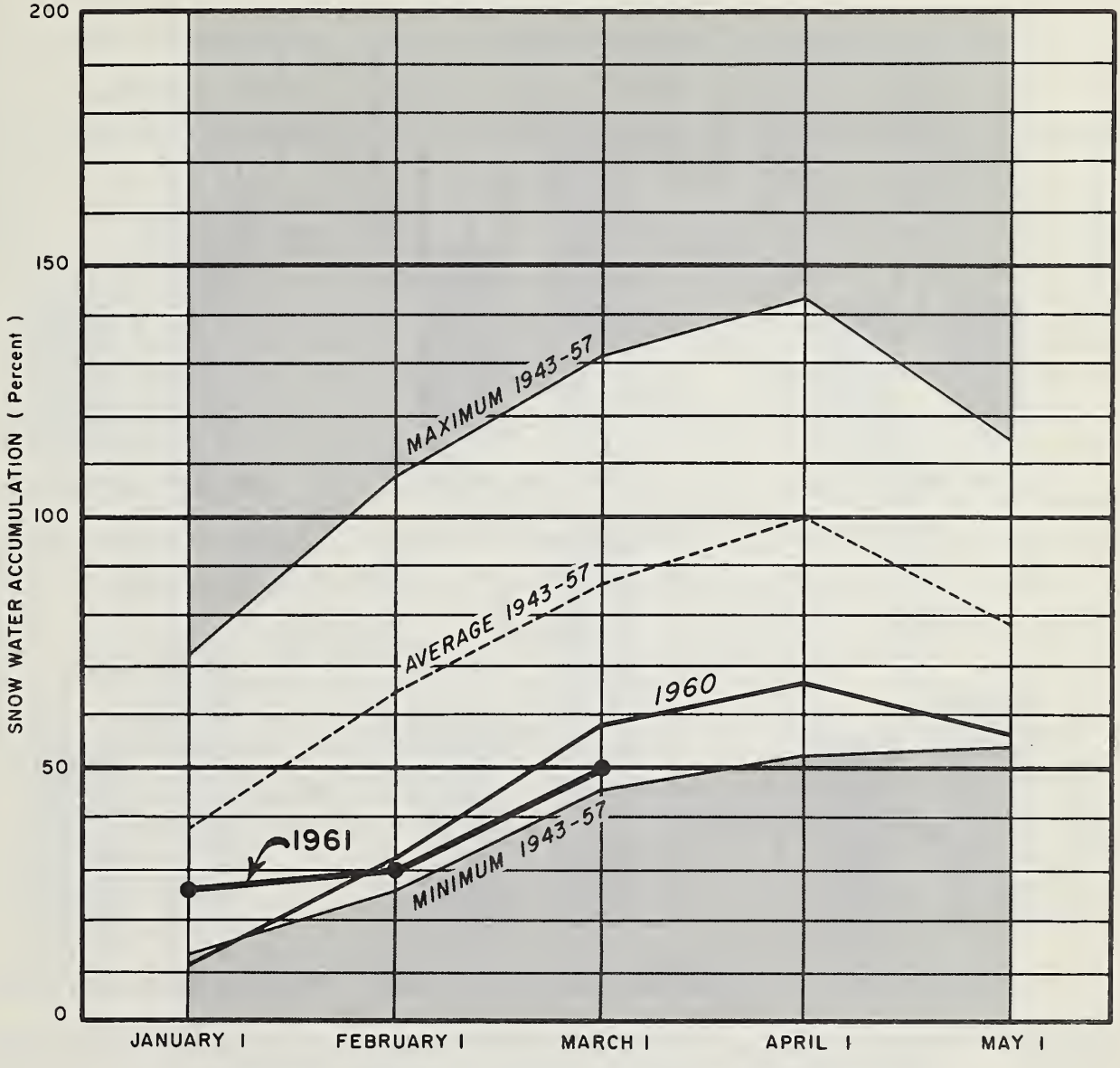
SNOW WATER ACCUMULATION in OREGON

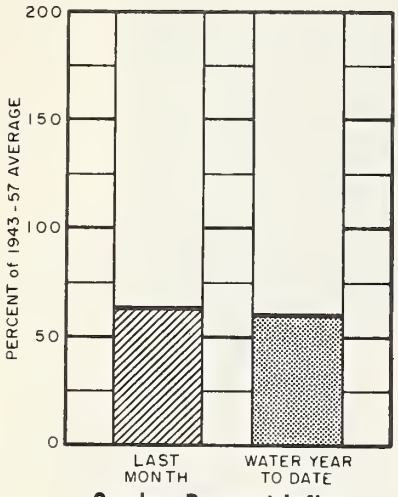
MARCH 1, 1961



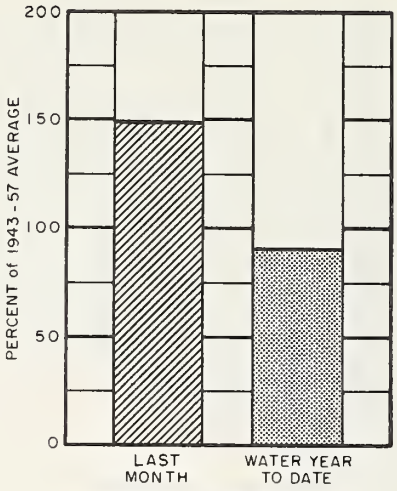
Although snow accumulated at a near normal rate during February, previous month's deficiencies leave the total accumulation to date far below average for March 1. Usually about 86 percent of the total snow pack is on the ground by March 1. This year snow accumulation is 36 percent below this average and is now only 50 percent of a normal winter "snow crop".

CURRENT OREGON STREAMFLOW

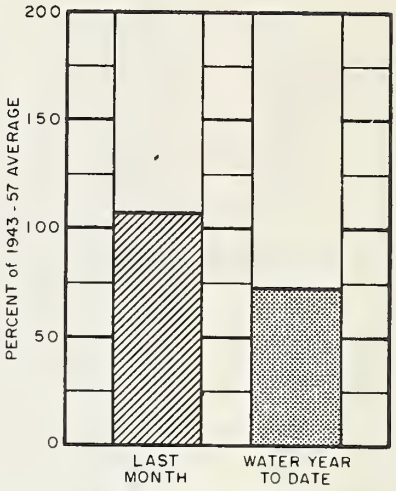
MARCH 1, 1961



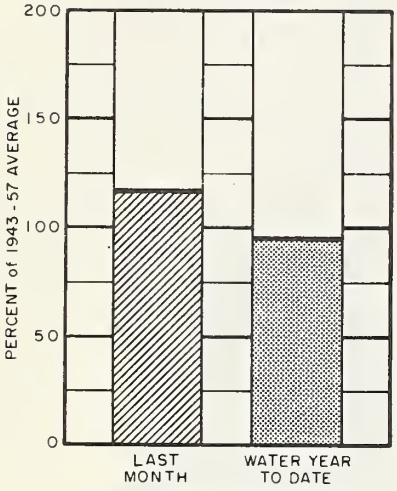
Owyhee Res. net inflow



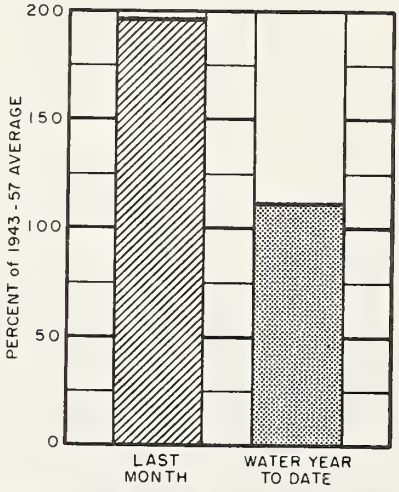
Umatilla near Umatilla



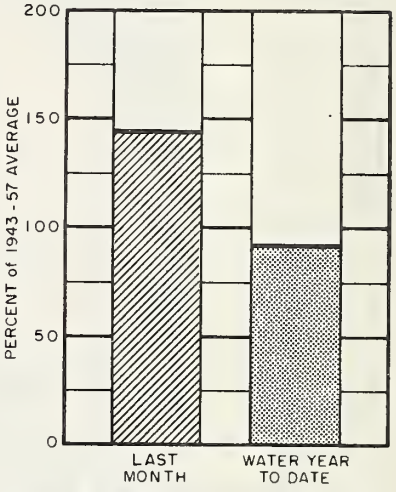
John Day at Service Creek



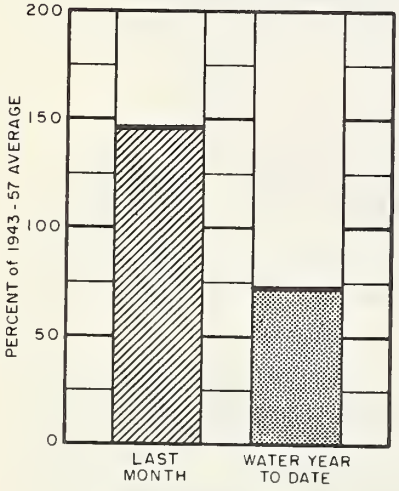
Deschutes at Moody



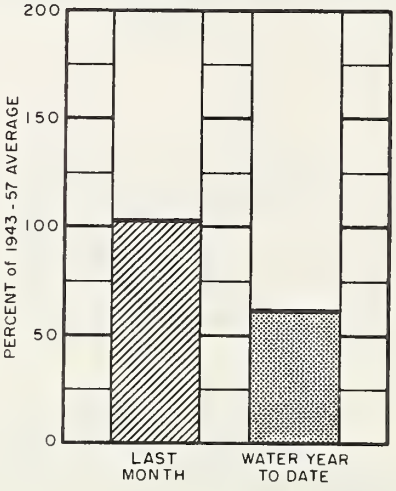
Hood and conduit near Hood River



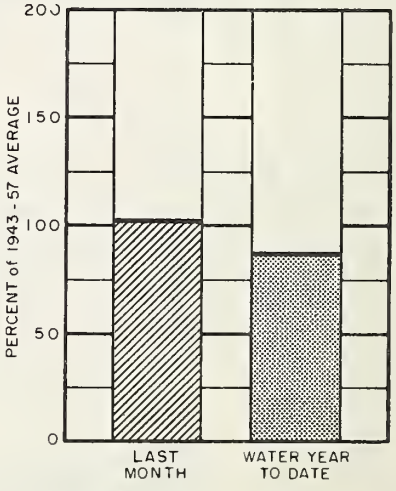
Mid. Fk. Willamette below No. Fk.



Umpqua near Elkton



Rogue at Raygold



Upper Klamath Lake net inflow

Data furnished by U.S. Geological Survey; The California Oregon Power Co.; and North and South Boards of Control Owyhee Project.

VALLEY PRECIPITATION in OREGON [a]

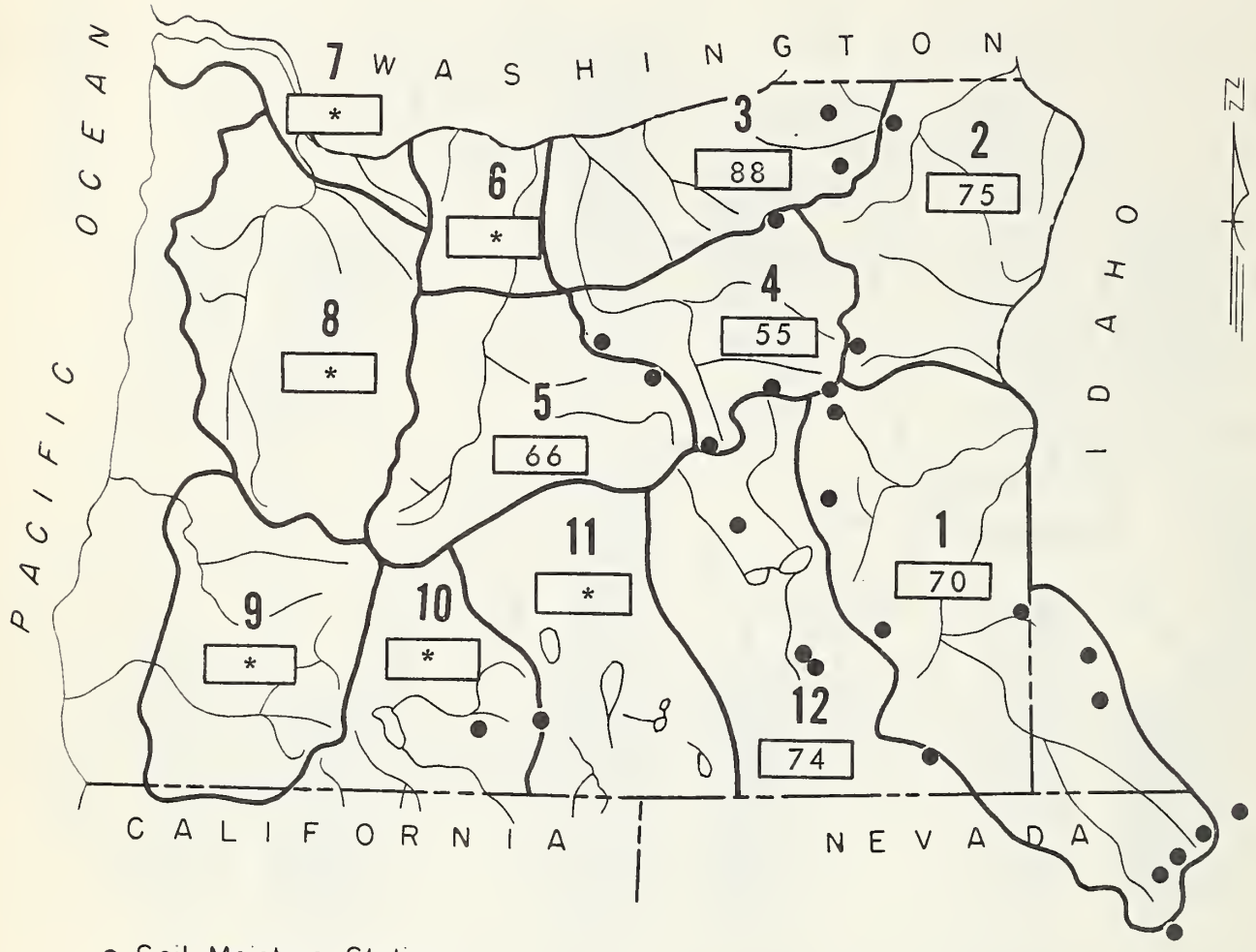
MARCH 1, 1961

PRECIPITATION as PERCENT of the 1943-57 AVERAGE					
STATION	LAST MONTH	WATER YEAR TO DATE [b]	STATION	LAST MONTH	WATER YEAR TO DATE [b]
Baker KBKR	84	109	Lakeview	73	79
Bend	202	87	Medford Apt.	127	75
Burns	105	74	Nyssa	138	88
Enterprise	81	70	Pendleton Apt.	241	94
Eugene Apt.	240	114	Portland Apt.	202	103
Heppner	215	97	Roseburg Apt.	228	95
John Day	171	88	Salem Apt.	199	104
Klamath Falls Apt.	141	83	The Dalles	247	109

(a) Preliminary data furnished by the U.S. Weather Bureau. (b) Oct. 1 to date. (c) Report delayed.

MOUNTAIN SOIL MOISTURE in OREGON
as percent of available capacity

MARCH 1, 1961



● Soil Moisture Station

**Moisture studies not yet developed in these areas.*

WATER SUPPLY OUTLOOK
OWYHEE, MALHEUR WATERSHEDS
OREGON

as of
MARCH 1, 1961

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE . OREGON AGRICULTURAL EXPERIMENT STATION and OREGON STATE ENGINEER

GENERAL OUTLOOK - Although a warm, wet February has raised the hopes of Malheur County farmers for an improved irrigation water supply outlook, the situation is now more gloomy than a month ago. While runoff from warm rains and melting snows has encouragingly boosted reservoired water supplies, it has, at the same time, reduced the possibility of good spring and summer streamflow and the outlook remains "poor" for most water users.

SNOW COVER - Water content of the mountain snowpack in Malheur County is much below average and far below March 1st last year. The snow on the Owyhee watershed is about 58 percent of average and 66 percent of last year at this time. Much of this watershed has already had its snow "flushed out" by warm February storms. On the Malheur watershed the snow is 58 percent of average but is only 48 percent of last year - almost all low elevation snow has disappeared in the February runoff.

SOIL MOISTURE - The top 12 to 15 inches of the soil mantle are thoroughly wetted by rains and melting snow. Total moisture in the top 4 feet of the soil profile is 70 percent of capacity.

RESERVOIR STORAGE - Total water stored in reservoirs is about equal to last year but is much below average. Agency Valley Reservoir has 25,700 a.f. in storage compared with 23,200 a.f. last year on March 1st. Warmsprings has 38,200 a.f. in storage compared with 40,000 one year ago. The big Owyhee Reservoir holds 256,400 a.f. which is slightly better than the 253,700 in storage a year ago.

STREAMFLOW - Flow of the Owyhee River* in February was 68 percent of average compared with 38 percent average in January.

Forecasts for flow of Malheur River near Drewsey call for 58,000 a.f. in the March-July period and 43,000 a.f. in the 6 months April through September or 53 percent average.

The North Fork of the Malheur at Beulah is expected to discharge 38,000 acre feet or 59 percent average April through September.

Inflow to Owyhee Reservoir is forecast at 160,000 acre feet March through July (31 percent average) and 100,000 a.f. April through September (23 percent).

Other streams in the county will have even "shorter" flows.

*Data furnished by North Board of Control, Nyssa, Oregon

Report prepared by
W.T. FROST AND BOB L. WHALEY
U.S. DEPARTMENT OF AGRICULTURE - SOIL CONSERVATION SERVICE
209 S.W. FIFTH AVENUE - PORTLAND 4, OREGON

WATER SUPPLY OUTLOOK expressed as "Poor", "Fair" "Average" or "Excellent"

STREAM or AREA	FLOW PERIOD	
	SPRING SEASON	LATE SEASON
Boulder Creek	Fair	Poor
Bully Creek	Fair	Poor
Cow Creek	Fair	Poor
Jordan Creek	Fair	Poor
Jordan Valley Irrig. Dist.	Fair	Fair
McDermitt Creek	Fair	Poor
Oregon Canyon Creek	Fair	Poor
Owyhee Project	Fair	Fair
Sucker Creek	Fair	Poor
Ten Mile Creek	Fair	Poor
Vale, Oregon Irrig. Dist.	Fair	Poor
Warmsprings Irrig. Dist.	Fair	Poor
Willow Creek	Fair	Fair

RESERVOIR STORAGE (1,000 Ac. Ft.)

RESERVOIR	USABLE CAPACITY	MEASURED (First of Month)		
		THIS YEAR	LAST YEAR	1943-57 AVERAGE
Agency Valley	60.0	25.7	23.2	33.6
Antelope	55.0	5.4	7.0*	10.1
Owyhee	715.0	256.4	253.7	473.1
Warmsprings	191.0	38.2	40.0	83.0

*Reading on 3/7/60

STREAMFLOW FORECASTS[a] (1,000 Ac. Ft.)

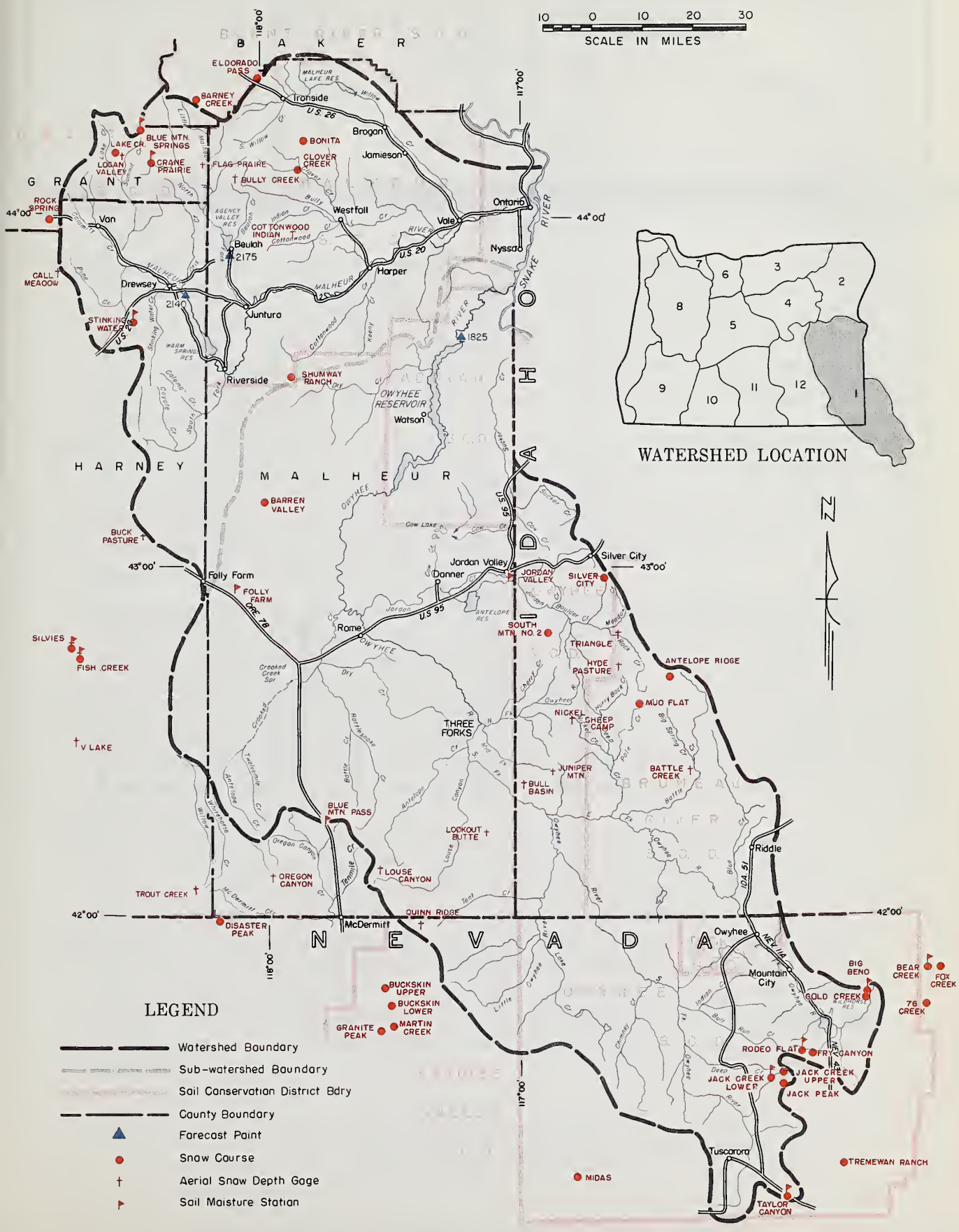
FORECAST POINT		FORECAST THIS YEAR	FORECAST PERIOD	1943-57 AVERAGE	THIS YEAR AS PERCENT OF AVERAGE[b]
NO.	NAME				
2140	Malheur near Drewsey	43	April-Sept.	81	53
		58	March-July	108	54
2175	Malheur, North Fork at Beulah[d]	38	April-Sept.	64	59
1825	Owyhee Reservoir net Inflow[g]	100	April-Sept.	430	23
		[c]	April-July	412	--
		160	March-July	524	31

AVAILABLE SOIL MOISTURE

STATION		PROFILE (Inches)		SOIL MOISTURE (Inches)			
NAME	ELEVATION	DEPTH	AVAILABLE CAPACITY	DATE	THIS YEAR	LAST YEAR	2 YEARS AGO
Bear Creek (Nev.)	7800	48	5.6	2-28-61	2.1	- -	- -
Big Bend (Nev.)	6700	48	9.6	2-28-61	7.8	9.2	8.9
Blue Mountain Springs	5900	42	12.0	2-23-61	4.5	- -	- -
Folly Farm	4450	36	8.3	2-15-61	6.2	6.7	4.6[i]
Jack Creek, Lower (Nev.)	6800	48	4.9	3-1-61	4.4	4.1	4.7
Jordan Valley	4250	48	9.8	2-15-61	5.9	5.8	6.3[i]
Rodeo Flat (Nev.)	6800	42	6.0	2-28-61	6.0	6.0[i]	6.0
Stinking Water Summit	4800	48	11.7	2-15-61	11.2	10.3	11.1[i]
Taylor Canyon (Nev.)	6200	48	9.7	3-2-61	6.6	6.5	6.5

(a) Assuming normal meteorological conditions. (b) 1943-57, 15 year period. (c) Not scheduled. (d) Corrected to natural flow. (e) Aerial snow depth gage; water content estimated. (f) Report delayed. (g) USBR records of inflow. (h) Not surveyed. (i) Nearest current data.

OWYHEE, MALHEUR WATERSHEDS



WATERSHED LOCATION

OR-1c

Owyhee, Malheur Watersheds

SNOW

SNOW COURSE NAME	ELEVATION	CURRENT INFORMATION: DATE OF SURVEY	CURRENT INFORMATION: SNOW DEPTH (Inches)	CURRENT INFORMATION: WATER CONTENT (Inches)	PAST RECORD: WATER CONTENT (Inches) LAST YEAR	PAST RECORD: WATER CONTENT (Inches) 1943-57 AVERAGE	PAST RECORD: YEARS IN AVERAGE [b]
Antelope Ridge	5900	2/24	5	1.7	5.2	- -	0
Barney Creek	5950	2/24	16	4.9	6.6	7.7	13
Battle Creek [e]	5700	2/28	6	1.9	3.6	- -	0
Bear Creek	7800	2/28	41	9.4	13.5	17.6	13
Big Bend	6700	2/28	23	5.2	7.0	8.9	15
Blue Mountain Spring	5900	2/23	38	10.9	12.8	15.2	15
Buckskin, Lower	6700	2/27	20	6.1	8.9	8.4	12
Buckskin, Upper	7200	2/27	20	6.8	10.0	7.9	11
Bull Basin [e]	5600	2/28	1	0.3	2.5	- -	0
Bully Creek [e]	5300	2/28	0	0.0	4.8	- -	0
Call Meadows [e]	5340	2/28	8	2.6	5.9	- -	0
Clover Creek	4100	*f*					
Cottonwood-Indian [e]	4320	2/28	0	0.0	3.4	- -	0
Crane Prairie	5375	2/23	19	6.2	9.5	9.6	15
Disaster Peak	6500	2/25	28	9.3	9.2	15.7	9
Eldorado Pass	4600	2/23	0	0.0	5.4	- -	3
Fish Creek [e]	7900	2/25	51	16.8	12.9	- -	0
Flag Prairie [e]	4750	2/28	0	0.0	- -	- -	0
Fox Creek	6800	2/28	17	4.5	8.1	8.9	13
Fry Canyon	6700	2/28	17	4.9	7.7	8.2	15
Gold Creek	6600	2/28	10	2.1	4.9	5.9	14
Granite Peak	7800	2/27	20	5.6	9.4	10.7	15
Hyde Pasture [e]	5800	2/28	6	1.9	5.9	- -	0
Jack Creek, Lower	6800	3/1	8	2.0	5.2	3.2	15
Jack Creek, Upper	7250	3/1	24	6.5	9.5	8.9	14
Jack Peak	8420	3/1	58	17.6	17.4	- -	1
Juniper Mountain [e] (Red Canyon)	6500	2/28	16	5.0	- -	- -	0
Lake Creek	5120	2/23	22	7.3	9.2	10.7	15
Logan Valley [e]	5100	2/28	14	4.6	9.2	- -	0
Lookout Butte [e]	5650	2/28	0	0.0	- -	- -	0
Louse Canyon [e]	6440	2/28	2	0.7	3.6	- -	0
Martin Creek	6700	2/27	18	6.2	9.0	8.2	15
Midas	7200	2/24	T	T	8.0	3.5	12
Mud Flat	5500	2/24	11	3.3	5.0	- -	0
Oregon Canyon [e]	6950	2/28	14	4.6	7.6	- -	0
Quinn Ridge [e]	6300	2/28	1	0.3	5.6	- -	0
Riddle Creek [e] (Buck Pasture)	5700	2/28	4	1.3	3.4	- -	0
Rock Spring	5100	2/27	8	1.7	6.7	5.9	15
Rodeo Flat	6800	2/28	15	4.0	5.7	8.2	15
Silver City	6400	2/28	27	8.2	12.8	15.8	9
Silvies [e]	6900	2/25	19	6.3	7.6	- -	0
South Mountain No. 2	6340	2/28	27	8.2	9.9	11.4	15
Stinking Water	4800	3/1	0	0.0	5.2	4.2	12
Taylor Canyon	6200	*f*					
Tremewan Ranch	5700	2/28	T	T	1.9	1.9	15
Triangle [e]	5150	2/28	1	0.3	1.7	- -	0
Trout Creek [e]	7800	2/28	16	5.3	5.6	- -	0
76 Creek	7100	2/27	25	6.5	8.4	11.1	10
"V" Lake [e]	6600	2/25	6	2.0	5.6	- -	0

"The Conservation of Water begins with the Snow Survey"

WATER SUPPLY OUTLOOK
BURNT, POWDER, PINE, GRANDE RONDE, IMNAHA WATERSHEDS
OREGON

as of
MARCH 1, 1961

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE, OREGON AGRICULTURAL EXPERIMENT STATION and OREGON STATE ENGINEER

GENERAL OUTLOOK - The 1961 irrigation water supply outlook for northeastern Oregon has improved on streams heading in the Wallowas to "near average" while decreasing slightly on the Burnt and Powder Rivers to "fair". Snow cover at higher elevations increased but at lower elevations above normal temperatures melted away some snow cover while adding to the soil moisture. Forecasts of streamflow vary from the high 80 percent bracket in the Wallowas down to the low 70 percent range on the Burnt and Grand Ronde Rivers.

SNOW COVER - Water content of the snowpack at higher elevations received substantial increases during February but the lack of snow at moderate and low elevations brings the snow cover over the area to 74 percent of the 1943-57 period. The snow cover is now 113 percent of last year at this time. These figures are misleading, however, because significant increases occurred only above about 5000 feet and lower elevations are conspicuously short of snow this year.

Snow accumulated at about the normal rate during February and has now reached 64 percent of an average year's total. The 1943-57 average March 1 accumulation is about 87 percent of the year's total. This means that the area as a whole has about 1/4 less than an average "snow crop" at this time.

SOIL MOISTURE - Moisture has penetrated 20 to 48 inches of the soil mantle in this area depending on the type of soils and location in the area. Electronic soil moisture stations sampling the top 4 feet of the soil profile average 75 percent of capacity. Those on the western edge of the area show the most moisture and the moisture decreases as you travel eastward.

RESERVOIR STORAGE - Storage in Unity Reservoir is 131 percent of average and 170 percent of last year and was reported March 1 as 11,900 acre feet. Wallowa Lake is slightly less than half as full as last year at this time although it is 90 percent of the 1943-57 average. It had 14,500 a.f. of usable storage on March 1.

STREAMFLOW - Forecasts of streamflow increased slightly for the Wallowa Mountain streams and the Grande Ronde River and lowered a little on the Burnt and Powder Rivers. Forecasts now range from 67 percent on the Grande Ronde to 89 percent on Lostine, Bear and Catherine Creeks. Smaller tributaries of the Burnt, Powder and Grande Ronde are expected to fall off earlier in the season and have limited late season flows.

Report prepared by
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WATER SUPPLY OUTLOOK expressed as "Poor", "Fair" "Average" or "Excellent"

STREAM or AREA	FLOW PERIOD	
	SPRING SEASON	LATE SEASON
Alder Slope	Fair	Fair
Baker Valley	Fair	Fair
Big Creek	Fair	Poor
Clover Creek (near North Powder)	Fair	Poor
Cove	Fair	Fair
Durkee	Fair	Poor
Eagle Valley	Fair	Fair
Elgin	Fair	Poor
Enterprise - Joseph	Average	Fair
Hereford - Bridgeport	Average	Fair
Imnaha River	Average	Fair
LaGrande - Island City	Fair	Poor
Lostine - Wallowa	Average	Fair
North Powder River - Wolf Creek	Fair	Poor
Pine Valley	Fair	Fair
Powder River - Elk Creek	Fair	Poor
Summerville	Fair	Poor
Sumpter Valley	Fair	Poor
Union - Hot Lake	Average	Fair
Unity	Fair	Poor

RESERVOIR STORAGE (1,000 Ac. Ft.)

RESERVOIR	USABLE CAPACITY	MEASURED (First of Month)		
		THIS YEAR	LAST YEAR	1943-57 AVERAGE
Unity	25.2	11.9	7.0	9.1
Wallowa Lake	37.5	14.5	29.3	16.1

STREAMFLOW FORECASTS[a] (1,000 Ac. Ft.)

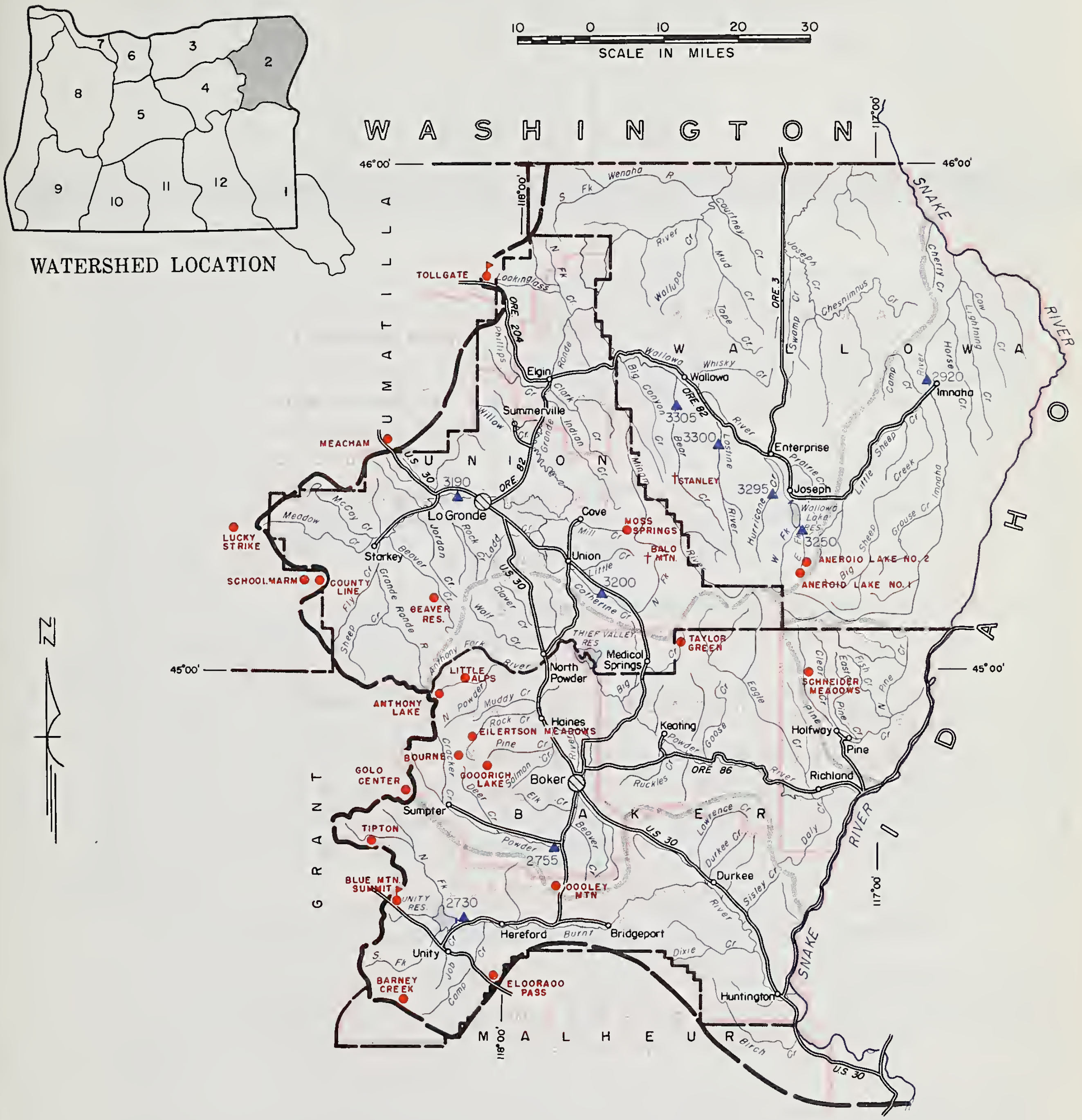
FORECAST POINT		FORECAST THIS YEAR	FORECAST PERIOD	1943-57 AVERAGE	THIS YEAR AS PERCENT OF AVERAGE[b]
NO.	NAME				
3305	Bear near Wallowa	66	April-Sept.	74	89
2730	Burnt near Hereford [d]	33	April-Sept.	45	73
		38	March-June	51	74
3200	Catherine near Union	65	April-Sept.	73	89
3190	Grande Ronde at LaGrande	135	April-Sept.	202	67
3295	Hurricane near Joseph	42	April-Sept.	49	86
2920	Imnaha at Imnaha	270	April-Sept.	314	86
3300	Lostine near Lostine	118	April-Sept.	133	89
2755	Powder near Baker	50	April-Sept.	66	76
		48	April-July	65	74
3250	Wallowa, East Fork near Joseph [d]	10.4	April-Sept.	12.1	86
		8.4	April-July	9.7	87

AVAILABLE SOIL MOISTURE

STATION		PROFILE (Inches)		SOIL MOISTURE (Inches)			
NAME	ELEVATION	DEPTH	AVAILABLE CAPACITY	DATE	THIS YEAR	LAST YEAR	2 YEARS AGO
Blue Mountain Summit	5100	36	10.4	2-14-61	3.4	2.8	3.4[i]
Emigrant Springs	3925	48	15.0	2-14-61	13.0	14.4	6.2[i]
Tollgate	5070	48	17.8	2-19-61	16.2	16.4	17.2

(a) Assuming normal meteorological conditions. (b) 1943-57, 15 year period. (c) Not scheduled. (d) Corrected to natural flow. (e) Aerial snow depth gage; water content estimated. (f) Report delayed. (g) Water content partly estimated. (h) Not surveyed. (i) Nearest current data.

BURNT, POWDER, PINE, GRANDE RONDE, IMNAHA WATERSHEDS



LEGEND

Watershed Boundary
Sub-watershed Boundary
Soil Conservation District Bdry.
County Boundary
Forecast Point
Snow Course
Soil Moisture Station
Aerial Snow Depth Gage

SNOW

SNOW COURSE		CURRENT INFORMATION			PAST RECORD		
NAME	ELEVATION	DATE OF SURVEY	SNOW DEPTH (Inches)	WATER CONTENT (Inches)	WATER CONTENT (Inches) LAST YEAR	WATER CONTENT (Inches) 1943-57 AVERAGE	YEARS IN AVERAGE [b]
Aneroid Lake No. 1	7480	2/26	82	28.2	16.3	32.4	14
Aneroid Lake No. 2	7000	2/26	65	22.8	13.1	25.4	14
Anthony Lake	7125	2/27	66	19.3	14.6	25.7	14
Bald Mountain [e] (Oregon)	6700	3/3	76	23.6	16.5	- -	0
Barney Creek	5950	2/24	16	4.9	6.6	7.7	13
Beaver Reservoir	5340	2/26	29	8.4	7.5	10.6	15
Blue Mountain Summit	5098	2/24	18	5.2	7.1	9.0	15
Bourne	5800	2/21	41	11.3	12.0	16.6	14
County Line	4800	2/28	12	2.7	5.2	6.6	7
Dooley Mountain	5430	2/24	18	4.9	8.0	8.8	15
Eilertson Meadows	5400	2/25	25	7.7	7.5	11.2	14
Eldorado Pass	4600	2/23	0	0.0	5.4	- -	3
Gold Center	5340	2/21	30	9.1	10.4	12.5	14
Goodrich Lake	6775	2/24	77	30.0	17.6	34.7	10
Little Alps	6200	2/27	33	8.8	7.9	- -	0
Lucky Strike	5050	2/27	28	9.0	- -	12.3	15
Meacham	4300	2/24	7	2.0	9.5	9.9	15
Moss Spring	5850	2/28	55	14.9	15.4	22.4	15
Schneider Meadows	5400	2/25	79	27.5	20.5	29.7	7
Schoolmarm	4775	2/28	9	2.1	5.0	5.5	8
Standley [e]	7400	2/28	75	25.5	- -	- -	0
Summit Springs	6000	[c]					
Taylor Green	5740	[c]					
Tipton	5100	2/23	25	7.5	7.9	11.0	12
Tollgate	5070	2/24	44	17.2	15.0	26.2	15

"The Conservation of Water begins with the Snow Survey"

WATER SUPPLY OUTLOOK
UMATILLA, WALLA WALLA, WILLOW, ROCK, LOWER JOHN DAY WATERSHEDS
OREGON

as of
MARCH 1, 1961

U.S.DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE, OREGON AGRICULTURAL EXPERIMENT STATION and OREGON STATE ENGINEER

GENERAL OUTLOOK

February was too warm and too wet, reducing rather than increasing the snowpack, resulting in a poor irrigation water supply outlook for lands depending on natural flow of the Umatilla River and its tributaries. Storage in both Cold Springs and McKay Reservoirs increased nicely but possibilities of future inflow to these reservoirs has been considerably reduced. The outlook for flow of the South Fork of the Walla Walla has improved slightly.

SNOW COVER

Water content of the mountain snowpack is now 51 percent of the March 1 average and 60 percent of last year at this date. Snowpack increased only at elevations above 5000 feet during February. There is no low-elevation snow.

SOIL MOISTURE

Wetness of the soil mantle (top 4 feet) has increased to 88 percent of capacity under the snowpack, favoring runoff next spring.

RESERVOIR STORAGE

Cold Springs Reservoir is nearly full with 48,500 acre feet in storage compared with 41,500 a.f. on March 1 last year. McKay Reservoir picked up 18,000 acre feet in February due to rains and melting snow. The total in McKay is now 35,000 acre feet compared with 26,000 a.f. a year ago. However, inflow to McKay during March, usually about 13,000 acre feet, is expected to be less this year. In addition, the inflow to McKay after April 1st is expected to be only 15,000 acre feet.

STREAMFLOW

Flow of the Umatilla near Umatilla* during February was high - about 149 percent of average (1943-57) - and is a total loss so far as irrigation is concerned.

Forecasts of streamflow for the April-September irrigation season are 60 percent of the 15 year average (1943-57) for the Umatilla at Pendleton, 48 percent average for McKay Creek and 72 percent average for the South Fork of the Walla Walla near Milton.

Flow of the smaller streams, Birch, Butter, Willow, Rhea and Rock Creeks will be very short, probably less than the 1957 flows, certainly less than last year's flows.

*Preliminary data furnished by U.S. Geological Survey, Portland, Oregon.

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WATER SUPPLY OUTLOOK

expressed as "Poor", "Fair" "Average" or "Excellent"

STREAM or AREA	FLOW PERIOD	
	SPRING SEASON	LATE SEASON
Birch Creek	Fair	Poor
Butter Creek	Fair	Poor
Dry Creek	Fair	Poor
Dugger Creek	Fair	Poor
Johnson Creek	Fair	Poor
McKay Creek	Fair	Poor
Mill Creek	Fair	Poor
Mud Creek	Fair	Poor
Pine Creek	Fair	Poor
Rhea Creek	Fair	Poor
Rock Creek	Fair	Poor
Umatilla River (Cold Springs Res.)	Fair	Fair
Umatilla River, Main	Fair	Poor
Umatilla River (McKay Res.)	Fair	Fair
Walla Walla River, Little	Fair	Poor
Walla Walla River, Main	Fair	Poor
Walla Walla River, N. Fork	Fair	Fair
Walla Walla River, S. Fork	Fair	Fair
Willow Creek	Fair	Poor

RESERVOIR STORAGE (1,000 Ac. Ft.)

RESERVOIR	USABLE CAPACITY	MEASURED (First of Month)		
		THIS YEAR	LAST YEAR	1943-57 AVERAGE
Cold Springs	50.0	48.5	41.5	38.6
McKay	73.8	35.0	26.0	44.1

STREAMFLOW FORECASTS[a] (1,000 Ac. Ft.)

FORECAST POINT		FORECAST THIS YEAR	FORECAST PERIOD	1943-57 AVERAGE	THIS YEAR AS PERCENT OF AVERAGE[b]
NO.	NAME				
0225	McKay near Pilot Rock	15	April-Sept.	31	48
		15	April-July	31	48
0200	Umatilla near Gibbon	58	April-Sept.	96	60
0210	Umatilla at Pendleton	112	April-Sept.	187	60
		111	April-July	182	61
0100	Walla Walla, South Fork near Milton	55	April-Sept.	76	72
		45	April-July	62	73

AVAILABLE SOIL MOISTURE

STATION		PROFILE (Inches)		SOIL MOISTURE (Inches)			
NAME	ELEVATION	DEPTH	AVAILABLE CAPACITY	DATE	THIS YEAR	LAST YEAR	2 YEARS AGO
Athena-Weston	1700	48	11.8	2-14-61	10.9	6.9	4.2[g]
Battle Mountain Summit	4340	48	8.0	2-13-61	6.3	4.7	2.6[g]
Emigrant Springs	3925	48	15.0	2-14-61	13.0	14.4[g]	6.2[g]
Tollgate	5070	48	17.8	2-19-61	16.2	16.4	17.2[g]

SNOW

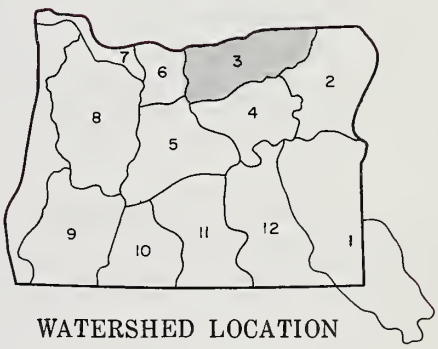
SNOW COURSE		CURRENT INFORMATION			PAST RECORD		
NAME	ELEVATION	DATE OF SURVEY	SNOW DEPTH (Inches)	WATER CONTENT (Inches)	WATER CONTENT (Inches) LAST YEAR	WATER CONTENT (Inches) 1943-57 AVERAGE	YEARS IN AVERAGE[b]
Arbuckle Mountain	5400	2/27	24	6.0	8.6	11.2	14
Battle Mountain Summit	4340	2/21	T	T	2.7	- -	0
Emigrant Springs	3925	2/24	0.4	0.1	6.0	7.3	15
Lucky Strike	5050	2/27	28	9.0	- -	12.3	15
Meacham	4300	2/24	7	2.0	9.5	9.9	15
Tollgate	5070	2/24	44	17.2	15.0	26.2	15

(a) Assuming normal meteorological conditions. (b) 1943-57, 15 year period. (c) Not scheduled. (d) Corrected to natural flow. (e) Aerial snow depth gage; water content estimated. (f) Report delayed. (g) Nearest current data.

UMATILLA, WALLA WALLA, WILLOW, ROCK, LOWER JOHN DAY WATERSHEDS

LEGEND

- Watershed Boundary
- Sub-watershed Boundary
- Soil Conservation District Bdry.
- County Boundary
- Forecast Point
- Snow Course
- Soil Moisture Station



WATERSHED LOCATION

"The Conservation of Water begins with the Snow Survey"

WATER SUPPLY OUTLOOK
UPPER JOHN DAY WATERSHEDS
OREGON

as of
MARCH 1, 1961

U.S.DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE . OREGON AGRICULTURAL EXPERIMENT STATION and OREGON STATE ENGINEER

GENERAL OUTLOOK - The water supply outlook in the John Day area for the 1961 irrigation season has been lowered slightly and still remains only "fair" to "poor". Above normal temperatures during February brought rain to much of the area, causing a loss of low elevation snow cover and only near normal increases on the upper watershed, leaving the area as a whole much below average for this time of year. Soil moisture conditions are conducive to good runoff as indicated by last month's above normal streamflows in the area.

SNOW COVER - Water content of the mountain snowpack is now only 60 percent of the 1943-57 average and 81 percent of last year at this date. Warm February storms depleted the snowpack at lower elevations, while adding only normal amounts at the higher elevations. Snow accumulation in this area has usually reached slightly better than nine-tenths of the total for the year by March 1 - this year, only a little over half of a normal year's snow accumulation was accounted for by recent snow surveys. Low elevation snow is conspicuously absent this year.

SOIL MOISTURE - Electronic soil moisture stations at several of the snow courses indicate that moisture conditions are 35 percent better than last year at this time, although only 55 percent of capacity. Most of this year's moisture is concentrated nearer the surface and should aid in spring runoff.

STREAMFLOW - Flow of the John Day River at Service Creek* during February was 108 percent of the 1943-57 average, reflecting the above normal temperatures and rainfall during the month. Flow since October 1 has only averaged 74 percent, indicating generally below average precipitation over the watershed this fall and winter. Precipitation at John Day has averaged 88 percent of the 1943-57 average for October-February period.

Streamflow forecasts for the April-September period dropped slightly this month and now range from 67 percent on the John Day at Ritter to 71 percent of the 1943-57 average for Strawberry Creek. The John Day at Prairie City is expected to flow 68 percent of average for the April-September period and 69 percent for the April-July period.

Irrigators in this area depending on the flow of smaller streams such as Beech, Indian, Cherry and Pine Creeks will likely have short late season water supplies and only fair supplies in the early season.

*Preliminary data furnished by U. S. Geological Survey, Portland, Oregon

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WATER SUPPLY OUTLOOK expressed as "Poor", "Fair" "Average" or "Excellent"

STREAM or AREA	FLOW PERIOD	
	SPRING SEASON	LATE SEASON
Beech Creek	Fair	Poor
Beech Creek-Fox-Long Cr.	Fair	Poor
Bridge-Mountain Creeks	Fair	Poor
Camas Creek	Fair	Fair
Cherry Creek	Fair	Poor
Indian-Pine Creeks	Fair	Poor
John Day River, Main Fork	Fair	Fair
John Day River, Mid. Fork	Fair	Fair
John Day River, N. Fork	Fair	Fair
John Day River, S. Fork	Fair	Fair
Monument-Kimberly	Fair	Fair
Strawberry Creek	Fair	Fair

RESERVOIR STORAGE (1,000 Ac. Ft.)

RESERVOIR	USABLE CAPACITY	MEASURED (First of Month)		
		THIS YEAR	LAST YEAR	1943-57 AVERAGE

STREAMFLOW FORECASTS[a] (1,000 Ac. Ft.)

FORECAST POINT		FORECAST THIS YEAR	FORECAST PERIOD	1943-57 AVERAGE	THIS YEAR AS PERCENT OF AVERAGE[b]
NO.	NAME				
0385	John Day at Prairie City	37	April-Sept.	54	68
		34	April-July	49	69
0440	John Day, Mid. Fork at Ritter	90	April-Sept.	135	67
0375	Strawberry near Prairie City	6.5	April-Sept.	9.1	71

AVAILABLE SOIL MOISTURE

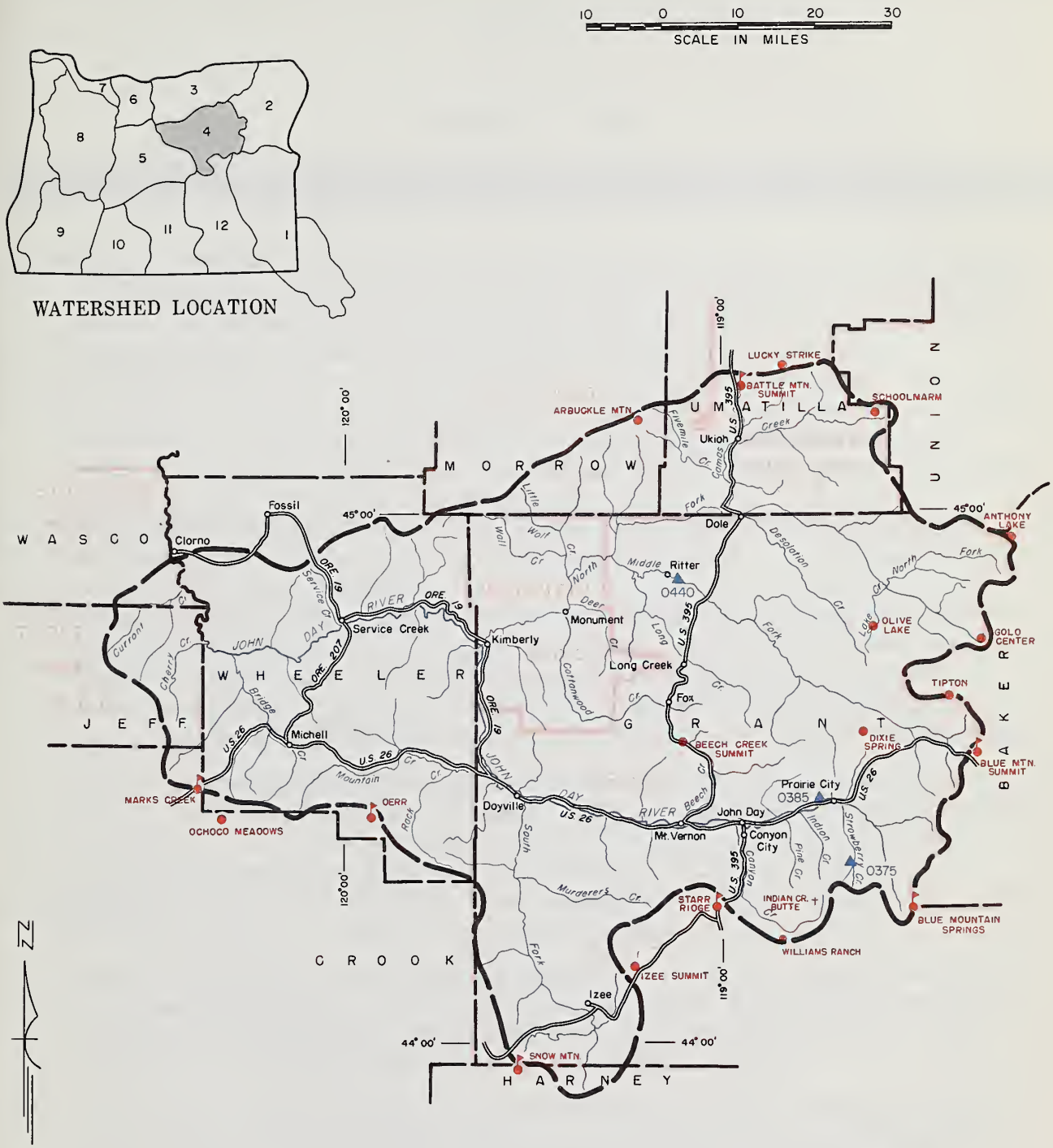
STATION		PROFILE (Inches)		SOIL MOISTURE (Inches)			
NAME	ELEVATION	DEPTH	AVAILABLE CAPACITY	DATE	THIS YEAR	LAST YEAR	2 YEARS AGO
Battle Mountain Summit	4340	48	8.0	2-13-61	6.3	4.7	2.6[h]
Blue Mountain Springs	5900	42	12.0	2-23-61	4.5	- -	- -
Blue Mountain Summit	5100	36	10.4	2-14-61	3.4	2.8	3.4[h]
Derr	5670	24	6.0	[c]			
Marks Creek	4540	36	8.3	2-24-61	5.5	2.4	4.7
Snow Mountain	6300	48	10.4	[c]			
Starr Ridge	5150	36	6.1	2-15-61	5.0	5.1	- -

SNOW

SNOW COURSE		CURRENT INFORMATION			PAST RECORD		
NAME	ELEVATION	DATE OF SURVEY	SNOW DEPTH (Inches)	WATER CONTENT (Inches)	WATER CONTENT (Inches) LAST YEAR	WATER CONTENT (Inches) 1943-57 AVERAGE	YEARS IN AVERAGE[b]
Anthony Lake	7125	2/27	66	19.3	14.6	25.7	14
Arbuckle Mountain	5400	2/27	24	6.0	8.6	11.2	14
Battle Mountain Summit	4340	2/21	T	T	2.7	- -	0
Beech Creek Summit	4800	2/24	0	0.0	5.0	5.8	15
Blue Mountain Spring	5900	2/23	38	10.9	12.8	15.2	15
Blue Mountain Summit	5098	2/24	18	5.2	7.1	9.0	15
Derr	5670	2/27	21	5.8	8.7	- -	3
Dixie Springs	6650	[c]					
Gold Center	5340	2/21	30	9.1	10.4	12.5	14
Indian Creek Butte [e]	6550	2/26	58	19.1	16.2	- -	0
Izee Summit	5293	2/24	15	5.4	6.8	8.1	15
Lucky Strike	5050	2/27	28	9.0	- -	12.3	15
Marks Creek	4540	2/24	0	0.0	3.7	4.3	15
Ochoco Meadows	5200	2/24	13	4.5	8.1	10.3	15
Olive Lake	6000	2/24	42	12.1	12.2	18.6	15
Schoolmarm	4775	2/28	9	2.1	5.0	5.5	8
Snow Mountain	6300	[c]					
Starr Ridge	5150	2/24	8	2.8	5.7	6.0	15
Tipton	5100	2/23	25	7.5	7.9	11.0	12
Williams Ranch	4500	[g]					

(a) Assuming normal meteorological conditions. (b) 1943-57, 15 year period. (c) Not scheduled. (d) Corrected to natural flow. (e) Aerial snow depth gage; water content estimated. (f) Report delayed. (g) Not surveyed. (h) Nearest current data.

UPPER JOHN DAY WATERSHEDS



"The Conservation of Water begins with the Snow Survey"

WATER SUPPLY OUTLOOK
UPPER DESCHUTES, CROOKED WATERSHEDS
OREGON

as of
MARCH 1, 1961

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE, OREGON AGRICULTURAL EXPERIMENT STATION and OREGON STATE ENGINEER

GENERAL OUTLOOK - February was too warm and too wet, reducing rather than increasing the hopes for a good mountain snowpack, resulting in a "fair" to "poor" irrigation water supply outlook for most central Oregon lands depending on natural streamflow. Reservoired water supplies have improved but are still "short" in Ochoco.

SNOW COVER - Water content of the mountain snowpack on the Deschutes River is almost equal (96 percent) to that of last year on this date, but is only 56 percent of the average (1943-57). The high elevation snow is considerably greater than last year on March 1st. On Crooked River watershed the snowpack is only 50 percent of last year's pack at this date and is 45 percent of average.

SOIL MOISTURE - Moisture in the top four feet of the soil mantle has improved greatly and will favor runoff. At the Marks Creek soil station the moisture is 66 percent of capacity and 229 percent of last year.

RESERVOIR STORAGE - Warm weather and rains during February have benefited reservoir supplies. Wickiup has 155,100 acre feet in storage, the same as last year at this date. Crane Prairie now has 37,700 acre feet compared to 32,300 a.f. a year ago but is below the 44,000 a.f. average for March 1st. Crescent Lake with 41,200 a.f. in storage is below the 47,700 a.f. held last year and below the 47,300 average storage.

Ochoco Reservoir gained 8,500 acre feet in February and now holds 10,800 a.f. compared with 4,500 a.f. last year on March 1. The average March 1st storage is 28,500 a.f. Prineville Reservoir has about 37,000 a.f. in storage, some of which may be available for lands served from the Rye Grass Ditch on Ochoco Creek.

STREAMFLOW - Flow of the Deschutes River at Moody* was 116 percent of average (1943-57) during February, a result of the abnormal temperatures and rainfall.

Streamflow forecasts for the Crooked River near Post for the April-September period, has dropped to 39 percent of the 15 year average. Net inflow to Ochoco Reservoir is expected to be only 31 percent average for the same period. The inflow March through July is forecast at 20,000 a.f. or 44 percent of average.

Flow of the Deschutes at Benham Falls for the irrigation season is forecast at 75 percent average and flow of Little Deschutes is expected to be 69 percent of average. Squaw and Tumalo Creeks are forecast at 85 and 80 percent of average.

*Preliminary data furnished by U.S. Geological Survey, Portland, Oregon

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WATER SUPPLY OUTLOOK expressed as "Poor", "Fair" "Average" or "Excellent"

STREAM or AREA	FLOW PERIOD	
	SPRING SEASON	LATE SEASON
Arnold Irrigation Dist.	Average	Average
Bear Creek	Fair	Poor
Beaver Creek	Fair	Poor
Camp Creek	Fair	Poor
Central Ore. Irrig. Dist.	Average	Average
Crooked River	Fair	Poor
Deschutes River	Average	Fair
Hay-Trout Creeks	Fair	Poor
Lone Pine Irrig. Dist.	Average	Average
Mill Creek	Fair	Poor
North Unit Irrig. Dist.	Average	Fair
Ochoco Creek	Fair	Poor
Sisters Irrigation Dist.	Fair	Poor
Snow Creek Irrig. Dist.	Fair	Fair
Squaw Creek Irrig. Dist.	Fair	Fair
Swalley Ditch	Average	Average
Tumalo Project	Average	Average
Walker Basin Irrig. Dist.	Average	Fair

RESERVOIR STORAGE (1,000 Ac. Ft.)

RESERVOIR	USABLE CAPACITY	MEASURED (First of Month)		
		THIS YEAR	LAST YEAR	1943-57 AVERAGE
Crane Prairie	55.3	37.7	32.3	44.1
Crescent Lake	117.2	41.2	46.6	47.3
Ochoco	47.5	10.8	4.5	28.5
Wickiup	182.0	155.1	155.0	133.3

Note: The U. S. Bureau of Reclamation indicates that dead storage in the amount of 5360 acre feet may be included in the current storage figure for Crescent Lake.

STREAMFLOW FORECASTS[a] (1,000 Ac. Ft.)

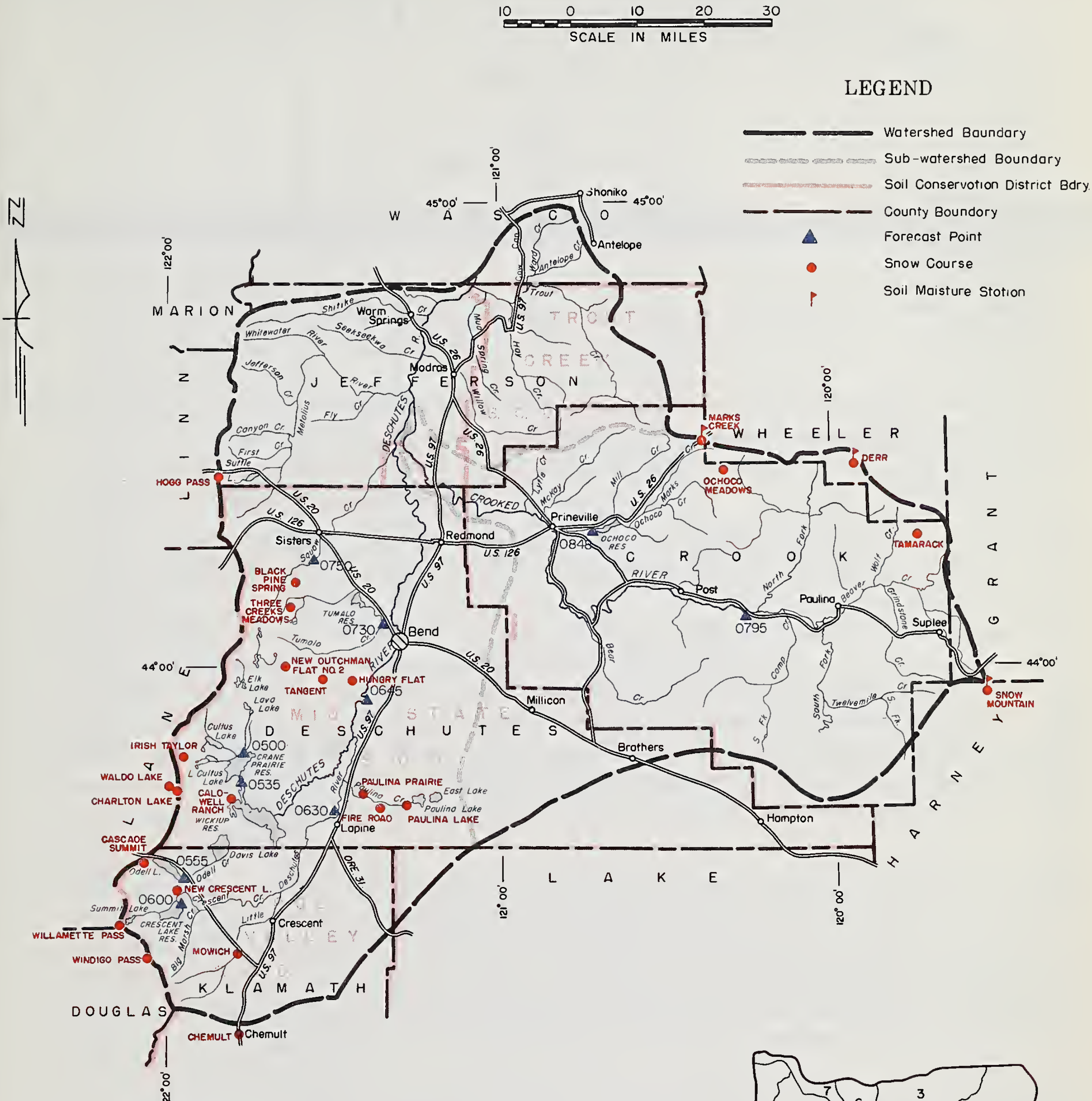
FORECAST POINT		FORECAST THIS YEAR	FORECAST PERIOD	1943-57 AVERAGE	THIS YEAR AS PERCENT OF AVERAGE[b]
NO.	NAME				
0535	Crane Prairie Reservoir total inflow	94	April-Sept.	143	66
0600	Crescent at Crescent Lake[d]	20	April-Sept.	31	65
0795	Crooked near Post	50	April-Sept.	129	39
0645	Deschutes at Benham Falls[d]	450	April-Sept.	602	75
		307	April-July	404	76
0500	Deschutes below Snow Creek	47	April-Sept.	74	64
0630	Deschutes, Little near Lapine[d]	78	April-Sept.	113	69
		69	April-July	100	69
0848	Ochoco Reservoir net inflow	10	April-Sept.	32	31
		20	March-July	45	44
0555	Odell near Crescent	25	April-Sept.	34	74
0750	Squaw near Sisters	47	April-Sept.	55	85
0730	Tumalo near Bend[d]	44	April-Sept.	55	80

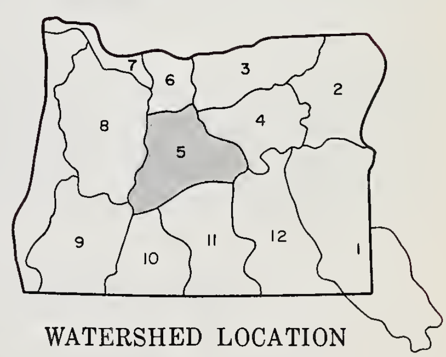
AVAILABLE SOIL MOISTURE

STATION		PROFILE (Inches)		SOIL MOISTURE (Inches)			
NAME	ELEVATION	DEPTH	AVAILABLE CAPACITY	DATE	THIS YEAR	LAST YEAR	2 YEARS AGO
Derr	5670	24	6.0	c			
Marks Creek	4540	36	8.3	2-24-61	5.5	2.4	4.7
Snow Mountain	6300	48	10.4	c			

(a) Assuming normal meteorological conditions. (b) 1943-57, 15 year period. (c) Not scheduled. (d) Corrected to natural flow. (e) Aerial snow depth gage; water content estimated. (f) Report delayed. (g) Partly estimated.

UPPER DESCHUTES, CROOKED WATERSHEDS





WATERSHED LOCATION

Upper Deschutes, Crooked Watersheds

SNOW

SNOW COURSE		CURRENT INFORMATION			PAST RECORD		
					WATER CONTENT (Inches)		
NAME	ELEVATION	DATE OF SURVEY	SNOW DEPTH (Inches)	WATER CONTENT (Inches)	LAST YEAR	1943-57 AVERAGE	YEARS IN AVERAGE[b]
Black Pine Spring	4600	2/27	5	0.8	3.3	5.9	6
Caldwell Ranch	4400	c					
Cascade Summit	4880	2/27	51	15.0	18.9	30.9	13
Charlton Lake	5750	c					
Chemult	4760	2/24	11	4.4	9.3	12.2	15
Derr	5670	2/27	21	5.8	8.7	- -	3
Fire Road	5050	2/23	T	T	3.8	- -	3
Hogg Pass	4755	2/24	55	19.5	19.6	42.0	15
Hungry Flat	4400	2/24	0	0.0	2.4	8.3	6
Irish-Taylor	5500	c					
Marks Creek	4540	2/24	0	0.0	3.7	4.3	15
Mowich	4700	2/20	0	0.0	8.3	- -	1
New Crescent Lake	4800	2/20	18	6.9	12.3	17.2	6
New Dutchman Flat No. 2	6400	2/24	96	38.6	27.0	49.7	11
Ochoco Meadows	5200	2/24	13	4.5	8.1	10.3	15
Paulina Lake	6330	2/23	42	14.4	9.1	- -	3
Paulina Prairie	4285	2/23	0	0.0	0.0	- -	3
Snow Mountain	6300	c					
Tamarack	4800	2/28	6	1.5	5.2	6.0	14
Tangent	5400	2/24	48	17.9	12.8	24.5	6
Three Creeks Butte	5200	2/27	9	2.7	6.2	- -	4
Three Creeks Meadows	5600	2/27	32	11.6	9.5	20.7	11
Waldo Lake	5500	c					
Willamette Pass	5600	2/20	66	23.1	25.2	41.9	7
Windigo Pass	5800	2/21	71	27.2	22.4	43.8	7

"The Conservation of Water begins with the Snow Survey"

WATER SUPPLY OUTLOOK
HOOD, MILE CREEKS, LOWER DESCHUTES WATERSHEDS
OREGON

as of
MARCH 1, 1961

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE . OREGON AGRICULTURAL EXPERIMENT STATION and OREGON STATE ENGINEER

GENERAL OUTLOOK - February was too warm and too wet, reducing rather than increasing the hopes for a good mountain snowpack, resulting in a "fair" to "poor" irrigation water supply outlook for all lands depending on natural flow of Hood and White Rivers and their tributaries.

SNOW COVER - Warm storms prevented any significant increase in the already skimpy lower elevation snowpack, but caused substantial increases at higher elevations. Water content of the mountain snowpack is now 78 percent of last year at this date but only 43 percent of the March 1st average.

Natural flow of streams is highly dependent upon the mountain snowpack, so it is hoped that remaining storms will come with cool enough temperatures to allow the snowpack to increase.

SOIL MOISTURE - Water content of the soil mantle (top 4 feet) is very good. The penetration of moisture has gone deeper than 4 feet in many places.

RESERVOIR STORAGE - Clear Lake Reservoir is reported to have more than 4,800 acre feet in storage. No reports have been received from Rock Creek and Badger Lake Reservoirs.

STREAMFLOW - Flow of Hood River* during February was very high - about double the average flow flow for that month. Streamflow since October 1st has averaged about 110 percent normal. This, of course, represents heavy rainfall and loss of low elevation snowpack.

Flow of Hood River near the mouth is forecast at 275,000 acre feet or 75 percent of the 1943-57 average for the irrigation season. The West Fork should flow about 127,000 acre feet or 73 percent of average for the same period. Last year the West Fork produced 198,000 a.f. in the six irrigation months. Flow of the East Fork and Middle Forks of Hood River should be about 30 and 20 percent of the flow of the main stream. There is still very little snow in the Mt. Defiance area and no report has been received on status of Greenpoint reservoirs.

Flow of White River below Tygh Valley is forecast at 125,000 a.f. for the April-September period or 70 percent of average. Rock, Gate, Threemile, Badger and Tygh Creeks will have very poor flows this season because of loss of the snowpack. Flow of Dog River, Mosier, Mill and the Mile Creeks will be considerably below average and probably below last season.

*Preliminary data furnished by U.S. Geological Survey, Portland, Oregon

Report prepared by
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209 S.W. FIFTH AVENUE . PORTLAND 4, OREGON

WATER SUPPLY OUTLOOK expressed as "Poor", "Fair" "Average" or "Excellent"

STREAM or AREA	FLOW PERIOD	
	SPRING SEASON	LATE SEASON
Aldridge Ditch	Fair	Fair
Badger Creek	Fair	Poor
Dee Irrigation District	Fair	Fair
East Fork Irrig. Dist.	Fair	Fair
Farmers Irrig. Dist.	Fair	Fair
Glacier Irrig. Dist.	Fair	Fair
Hood River Irrig. Dist.	Fair	Poor
Juniper Flat	Average	Fair
Middle Fork Irrig. Dist.	Fair	Fair
Mile Creeks	Fair	Poor
Mill Creek	Fair	Poor
Mount Hood Irrig. Dist.	Fair	Fair
Rock-Gate-Threemile Crs.	Fair	Poor
Tygh Creek	Fair	Poor
White River	Fair	Fair

RESERVOIR STORAGE (1,000 Ac. Ft.)

RESERVOIR	USABLE CAPACITY	MEASURED (First of Month)		
		THIS YEAR	LAST YEAR	1943-57 AVERAGE
Clear Lake	- -	4.8	- -	- -

STREAMFLOW FORECASTS[a] (1,000 Ac. Ft.)

FORECAST POINT		FORECAST THIS YEAR	FORECAST PERIOD	1943-57 AVERAGE	THIS YEAR AS PERCENT OF AVERAGE[b]
NO.	NAME				
1210	Hood near Hood River [d]	275	April-Sept.	365	75
		235	April-July	311	76
1185	Hood, West Fork near Dee	127	April-Sept.	174	73
		112	April-July	151	74
1015	White below Tygh Valley	125	April-Sept.	178	70
		110	April-July	161	68

SNOW

SNOW COURSE		CURRENT INFORMATION			PAST RECORD		
NAME	ELEVATION	DATE OF SURVEY	SNOW DEPTH (Inches)	WATER CONTENT (Inches)	WATER CONTENT (Inches) LAST YEAR	WATER CONTENT (Inches) 1943-57 AVERAGE	YEARS IN AVERAGE[b]
Brooks Meadows	4300	2/27	14	2.5	6.8	- -	0
Clear Lake	3500	2/24	1	0.4	5.9	13.5	14
Clear Lake Experimental	3500	2/24	9	2.0	9.8	- -	0
Cooper Spur	3490	[c]					
Greenpoint Reservoir	3400	2/23	2	0.5	12.8	18.3	9
Knebal Springs	3850	2/27	10	1.5	4.8	- -	0
Parkdale	1770	[c]					
Phlox Point	5600	2/23	110	41.5	30.4	60.5	14
Red Hill	4400	2/26	62	17.4	20.5	49.2	10
Still Creek	3700	2/22	23	7.9	13.3	25.5	15
Tilly Jane	6000	2/18	71	24.8	19.0	47.7	7
Ulrich Ranch Junction	3350	2/27	7	1.0	4.8	- -	0
Upper Valley	2530	[c]					

(a) Assuming normal meteorological conditions. (b) 1943-57, 15 year period. (c) Not scheduled. (d) Corrected to natural flow. (e) Aerial snow depth gage; water content estimated. (f) Report delayed. (g) Partly estimated.

HOOD, MILE CREEKS, LOWER DESCHUTES WATERSHEDS

LEGEND

- Watershed Boundary
- Sub-watershed Boundary
- Soil Conservation District Bdry.
- County Boundary
- Forecast Point
- Snow Course

WATERSHED LOCATION

"The Conservation of Water begins with the Snow Survey"

WATER SUPPLY OUTLOOK
LOWER COLUMBIA WATERSHEDS
OREGON

as of

MARCH 1, 1961

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE . OREGON AGRICULTURAL EXPERIMENT STATION and OREGON STATE ENGINEER

GENERAL OUTLOOK

The water supply outlook for spring and summer flow of the Columbia River near The Dalles has increased slightly during the month of February. The river is now forecast to flow 94 million acre feet during the April-September period, which is 89 percent of the 15 year normal (1943-57).

SNOW COVER

The snow cover on the Canadian portion of the Columbia River basin increased in relation to normal during the month of February. In the southern portion of the basin in western Wyoming, southern Idaho, and in eastern Oregon, snowfall during February was close to normal but the total snowpack to date is extremely light.

SOIL MOISTURE

Watershed soils in the northern portion of Columbia Basin and Canada are well primed but in the remainder of the basin, watershed soils are again unusually dry. The first foot to foot and a half of soil is partially primed, but below this level, the soil is extremely dry and expected to reduce streamflow resulting from snow melt this spring.

STREAMFLOW

Flow of the Columbia River near The Dalles* has averaged 152 percent of normal during February.

Month	Percent of Normal Discharge (1943-57)
October	103 Adjusted for storage
November	107 " " "
December	82 " " "
January	78 " " "
February	152 " " "

*From preliminary data furnished by U.S. Geological Survey, Portland, Oregon

Report prepared by

U.S. DEPARTMENT OF AGRICULTURE - SOIL CONSERVATION SERVICE

W.T. FROST AND BOB L. WHALEY · 209 S.W. FIFTH AVENUE, PORTLAND 4, OREGON

M.W. NELSON - P.O. BOX 1247, BOISE, IDAHO

STREAMFLOW FORECASTS[a] (1,000 Ac. Ft.)

FORECAST POINT NO.	FORECAST POINT NAME	FORECAST THIS YEAR	FORECAST PERIOD	1943-57 AVERAGE	THIS YEAR AS PERCENT OF AVERAGE[b]
1057	Columbia at The Dalles	94,000	April-Sept.	106,100	89

HISTORICAL DATA (Columbia River at The Dalles)

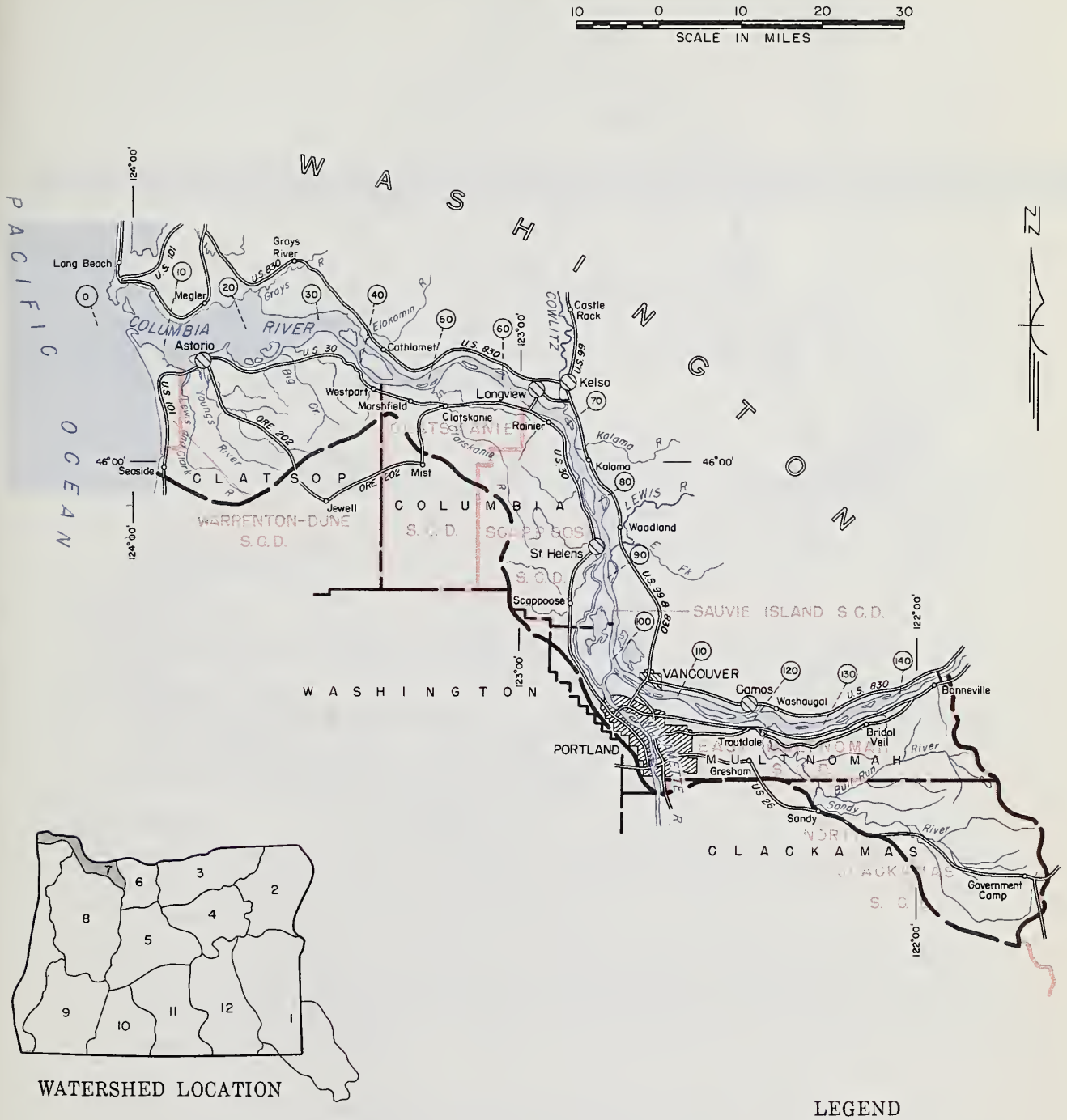
YEAR	STREAMFLOW[c] (1,000 A.F.) APR.— SEPT.	APR. — JUNE	MAY — JUNE	PEAK[e] (1,000 c.f.s)	DATE
1943	115,000	75,300	52,400	541	June 21
1944	61,900	39,200	32,100	326	June 19
1945	81,600	54,600	47,300	505	June 8
1946	108,100	75,400	59,600	581	May 30
1947	100,300	70,000	56,800	536	May 11
1948	130,500	94,600	81,900	999	May 31
1949	95,700	71,400	56,000	622	May 18
1950	120,400	74,700	61,200	744	June 25
1951	113,000	75,600	59,100	597	May 26
1952	107,700	77,500	57,300	557	May 28
1953	100,600	64,900	55,800	609	June 17
1954	119,500	70,500	59,300	561	May 23
1955	99,500	58,300	50,300	545	June 26
1956	131,400	96,900	75,800	815	June 3
1957	105,700	80,500	67,200	700	May 22
1943-57 Avg.	106,100	72,000	58,100	616	
1958	97,700	72,000	58,600	593	May 31
1959	112,500	71,900	58,900	555	June 23

LOWER COLUMBIA RIVER FLOOD STAGES (with 9.5' tide at Astoria)[f]

VANCOUVER[g] GAGE (Weather Bu.)	FLOW AT THE DALLES (1,000 c.f.s)	DRAINAGE DISTRICT PUMPHOUSE SANDY	SAUVIE ISL.	SCAPPOOSE	DEER ISL.	RAINIER	BEAVER	WOODSON
		RIVER MILES 118.9	96.0	91.0	77.0	62.0	52.0	47.0
35 (1894)	1210	41.2	34.2	33.3	28.5	21.9	17.5	15.5
34	1160	40.5	33.5	32.5	27.7	21.2	17.0	15.0
33	1100	39.6	32.4	31.4	26.7	20.2	16.1	14.3
32	1050	38.9	31.5	30.5	25.7	19.5	15.4	13.7
31 (1948)	1000	38.0	30.7	29.5	25.1	18.8	14.7	13.0
30	940	36.6	29.5	28.5	24.3	18.1	14.0	12.4
29	890	35.5	28.5	27.7	23.7	17.5	13.4	11.8
28	840	34.3	27.5	26.7	22.8	17.0	13.0	11.4
27 (1956)	790	33.0	26.5	25.6	21.8	16.2	12.5	11.0
26 (1950)	750	32.1	25.5	24.6	20.9	15.5	12.2	10.7
25	700	30.7	24.2	23.2	19.7	14.6	11.7	10.3
24	660	29.7	23.0	22.2	19.0	14.1	11.4	10.2
23	630	29.0	22.3	21.4	18.4	13.6	11.2	10.0
22	590	28.1	21.4	20.3	17.2	13.0	10.9	9.7
21	560	27.2	20.7	19.5	16.4	12.6	10.6	9.6
20	530	26.2	19.8	18.6	15.5	12.1	10.2	9.4
19	510	25.5	19.2	18.0	15.0	11.8	10.0	9.3
18	480	24.4	18.3	17.2	14.3	11.4	9.8	9.1
17	450	23.4	17.4	16.4	13.7	11.0	9.6	8.9
16	430	22.4	16.5	15.5	13.0	10.5	9.3	8.7

(a) Assuming normal meteorological conditions. (b) 1943-57, 15 year period. (c) Observed flow corrected for storage in F.D.R., Kootenai, Pend Oreille, Flathead, Hungry Horse, Lake Chelan, Coeur d'Alene and Grand Coulee Equalizer. (d) Not scheduled. (e) Observed peak. (f) Based on Corps of Engineers automatic water stage recorder data. (g) Vancouver Weather Bureau gage zero is 1.82' above M.S.L. All other readings are in feet above M.S.L.

LOWER COLUMBIA WATERSHEDS



WATERSHED LOCATION

LEGEND

- Watershed Boundary
- Sub-watershed Boundary
- Soil Conservation District Bdry.
- County Boundary
- (50) River Miles

"The Conservation of Water begins with the Snow Survey"

WATER SUPPLY OUTLOOK
WILLAMETTE WATERSHEDS
OREGON

as of
MARCH 1, 1961

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE . OREGON AGRICULTURAL EXPERIMENT STATION and OREGON STATE ENGINEER

GENERAL OUTLOOK

February was too warm and too wet in Willamette Valley, reducing hopes for a good snowpack, resulting in a "fair" to "poor" irrigation water supply outlook for lands depending on natural streamflow. Reservoirs received unusually heavy inflows as a result of February storms.

SNOW COVER

Water content of the mountain snowpack on Willamette watersheds is still exceedingly low - lower percentagewise (only 36 percent of average) than on any other major watershed area in the state. Snow water is now 71 percent of the amount present on March 1st last year. The snowpack is conspicuously "short" at the low elevation stations.

SOIL MOISTURE

Watershed soils are all extremely well wetted.

RESERVOIR STORAGE

Stored water supplies in the five multi-purpose reservoirs operated by the Corps of Army Engineers is equal to that on March 1st of last year and is about 137 percent of the average for the 1943-57 period.

STREAMFLOW

Flow of the Middle Fork of the Willamette River* during February rose to 144 percent average during the heavy and warm February storms. Runoff averages only 89 percent of the normal since October 1st.

Forecasts of streamflow on Willamette Valley streams dropped slightly since February 1 and now range from 63 percent of average on the Santiam to 74 percent on the McKenzie with the main Willamette at Salem now forecasted at 72 percent of the 1943-57 average.

*Preliminary data furnished by U.S. Geological Survey, Portland, Oregon

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WATER SUPPLY OUTLOOK

expressed as "Poor", "Fair" "Average" or "Excellent"

STREAM or AREA	FLOW PERIOD	
	SPRING SEASON	LATE SEASON
Calapooya	Fair	Poor
Clackamas	Fair	Fair
McKenzie	Fair	Fair
Molalla	Fair	Poor
Santiam, North	Fair	Fair
Santiam, South	Fair	Fair
Willamette, Coast Fork	Fair	Fair
Willamette, Middle Fork	Fair	Fair

RESERVOIR STORAGE (1,000 Ac. Ft.)

RESERVOIR	USABLE CAPACITY	MEASURED (First of Month)		
		THIS YEAR	LAST YEAR	1943-57 AVERAGE
Cottage Grove	30.0*	8.0	9.1	9.7
Detroit	299.9*	136.8	134.4	79.3
Dorena	70.5*	17.9	21.1	23.0
Fern Ridge	94.2*	38.7	37.4	35.1
Lookout Point	337.2*	98.0	89.6	- -

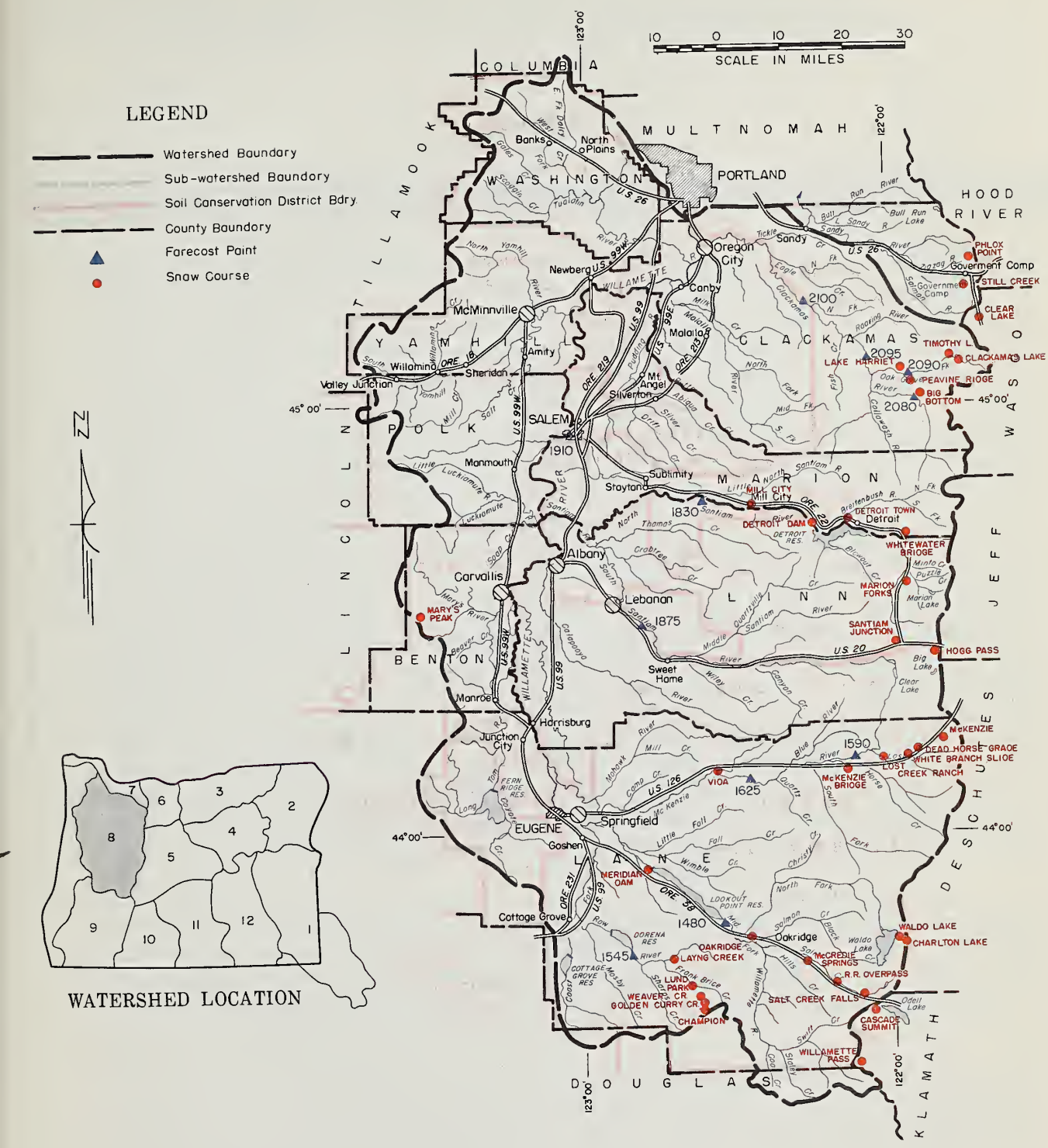
*Multiple purpose reservoir--space reserved primarily for flood runoff.

STREAMFLOW FORECASTS[a] (1,000 Ac. Ft.)

FORECAST POINT		FORECAST THIS YEAR	FORECAST PERIOD	1943-57 AVERAGE	THIS YEAR AS PERCENT OF AVERAGE[b]
NO.	NAME				
2080	Clackamas at Big Bottom	124	April-Sept.	184	67
		100	April-July	150	67
2100	Clackamas at Estacada	606	April-Sept.	879	68
		540	April-July	763	71
2095	Clackamas above Three Lynx	450	April-Sept.	674	67
		380	April-July	578	66
1590	McKenzie at McKenzie Bridge	473	April-Sept.	640	74
		353	April-July	488	72
1625	McKenzie near Vida	982	April-Sept.	1362	72
		789	April-July	1120	70
2090	Oak Grove Fork above Power Intake	145	April-Sept.	198	73
		112	April-July	156	72
1545	Row near Dorena	80	April-Sept.	114	70
		77	April-July	109	71
1830	Santiam, North at Mehama[d]	616	April-Sept.	968	64
		540	April-July	866	62
1875	Santiam, South at Waterloo	414	April-Sept.	652	63
		378	April-July	616	61
1480	Willamette, Mid. Fk. blw. N. Fk. nr. Oakridge	653	April-Sept.	909	72
		579	April-July	804	72
1910	Willamette at Salem[d]	3960	April-Sept.	5461	72
		3485	April-July	4942	71

(a) Assuming normal meteorological conditions. (b) 1943-57, 15 year period. (c) Not scheduled. (d) Corrected to natural flow. (e) Aerial snow depth gage; water content estimated. (f) Report delayed.

WILLAMETTE WATERSHEDS



SNOW

SNOW COURSE		CURRENT INFORMATION			PAST RECORD		
					WATER CONTENT (Inches)		
NAME	ELEVATION	DATE OF SURVEY	SNOW DEPTH (Inches)	WATER CONTENT (Inches)	LAST YEAR	1943-57 AVERAGE	YEARS IN AVERAGE[b]
Big Bottom	2118	2/26	1	0.3	0.0	8.9	7
Cascade Summit	4880	2/27	51	15.0	18.9	30.9	13
Champion	4500	3/1	34	8.4	23.7	24.7	15
Charlton Lake	5750	*c*					
Clackamas Lake	3400	2/23	7	2.3	6.7	15.7	13
Clear Lake	3500	2/24	1	0.4	5.9	13.5	14
Clear Lake Experimental	3500	2/24	9	2.0	9.8	- -	0
Dead Horse Grade	3800	2/29	23	5.0	11.6	24.5	7
Detroit Town	1610	2/24	0	0.0	0.0	2.0	8
Detroit Dam	1580	2/24	0	0.0	0.0	0.9	8
Golden Curry Creek	3136	3/1	5	2.5	2.5	7.5	8
Hogg Pass	4755	2/24	55	19.5	19.6	42.0	15
Lake Harriet	2045	2/26	1.5	0.5	0.0	3.3	7
Layng Creek	1200	3/1	0	0.0	0.0	0.0	8
Lost Creek Ranch	1956	2/29	1	0.3	0.0	- -	0
Lund Park	1740	3/1	0	0.0	0.0	1.5	8
Marion Forks	2730	2/24	5	1.3	6.7	15.9	15
Marys Peak	3620	2/25	21	5.5	- -	- -	3
McCredie Springs	2120	2/27	0	0.0	0.0	1.1	9
McKenzie	4800	2/29	73	22.6	21.9	47.8	8
McKenzie Bridge	1372	2/29	0	0.0	0.0	2.2	6
Meridian Dam	750	2/27	0	0.0	0.0	0.0	8
Mill City	826	2/24	0	0.0	0.0	0.0	9
Oakridge	1310	2/27	0	0.0	0.0	T	8
Peavine Ridge	3500	2/27	27	6.1	12.4	18.8	15
Phlox Point	5600	2/23	110	41.5	30.4	60.5	14
Railroad Overpass	2750	2/27	T	T	0.0	6.0	9
Salt Creek Falls	4000	2/27	15	2.8	12.0	20.1	9
Santiam Junction	3990	2/24	16	5.8	11.8	25.3	15
Still Creek	3700	2/22	23	7.9	13.3	25.5	15
Timothy Lake	3295	2/27	25	5.5	9.0	- -	2
Vida	800	2/29	0	0.0	0.0	0.0	5
Waldo Lake	5500	*c*					
Weaver Creek	2440	3/1	0	0.0	T	2.8	7
White Branch Slide	2800	2/29	5	0.8	3.9	8.7	7
Whitewater Bridge	2175	2/24	0	0.0	T	9.7	9
Willamette Pass	5600	2/20	66	23.1	25.2	41.9	7

WATER SUPPLY OUTLOOK
ROGUE, UMPQUA WATERSHEDS
OREGON

as of

MARCH 1, 1961

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE . OREGON AGRICULTURAL EXPERIMENT STATION and OREGON STATE ENGINEER

GENERAL OUTLOOK - Although a warm, wet February has raised hopes of southern Oregon farmers and other water users for an improved spring and summer water supply outlook, the situation is now more gloomy than a month ago and the outlook is poorer than last year. Because of warm February storms the mountain snowpack has failed to increase in usual amounts, thereby reducing the possibility of good spring and summer streamflow and the water supply outlook is now "fair" to "poor" for most lands.

SNOW COVER - Water content of the snowpack on Rogue-Umpqua watersheds is 57 percent of the 1943-57 average but only 69 percent of last year on March 1st. The snowpack increased heavily during February at a few very high snow courses, but snow at moderate and low elevations is conspicuously "short".

SOIL MOISTURE - Moisture in the soil mantle of these watersheds is very satisfactory and will favor spring runoff.

RESERVOIR STORAGE - Water stored in Fish Lake and Fourmile Lake Reservoirs for use by Medford and Rogue Valley Irrigation Districts now totals only 7,000 a.f. compared with 8,600 a.f. last year on March 1st. This is only 50 percent of the average storage available.

The Talent Irrigation District, with new storage space in Howard Prairie and Emigrant Lake, has 34,500 a.f. now in storage compared with 14,700 a.f. last year at this date.

STREAMFLOW - Flow of Rogue River at Raygold*, which has been far below average all winter, finally reached near normal flow during February but has since "fallen off" to below average flows. This reflects the reduction in base flow caused by two previous "dry" years.

Forecasts of streamflow for the irrigation season (April-September) indicate discharge of North Umpqua River and Rogue River at Raygold will be about 67 percent of the 1943-57 average. Minimum flow at Raygold is expected to fall to 900 c.f.s. by August 15th. Grants Pass Irrigation District will not likely require canal alternation unless summer temperatures and rainfall are below average.

Discharge of the North and South Forks of Little Butte Creek is set at 59 and 57 percent average for the April-September period. Inflow to Fourmile Lake and Hyatt Reservoir is expected to be only 62 and 32 percent average. Flows of the Illinois and Applegate Rivers are forecast at 64 and 69 percent of average and will provide only "short" water supplies for many acres.

*Preliminary data furnished by U.S. Geological Survey, Portland, Oregon

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WATER SUPPLY OUTLOOK expressed as "Poor", "Fair" "Average" or "Excellent"

STREAM or AREA	FLOW PERIOD	
	SPRING SEASON	LATE SEASON
Althouse Creek	Fair	Poor
Applegate River, Big	Fair	Poor
Applegate River, Little	Fair	Poor
Ashland Creek	Fair	Poor
Butte Creek, Little	Fair	Poor
Butte Creek, Big	Fair	Fair
Cow Creek	Fair	Poor
Deer Creek	Fair	Poor
Elk Creek	Fair	Poor
Emigrant Cr. (above Res.)	Fair	Poor
Evans Creek	Fair	Poor
Gold Hill Irrigation Dist.	Average	Fair
Grants Pass Irrig. Dist.	Average	Average
Grave Creek	Fair	Poor
Illinois River, East Fork	Fair	Poor
Illinois River, West Fork	Fair	Poor
Jump-off-Joe Creek	Fair	Poor
Neil Creek	Fair	Poor
Red Blanket Creek	Fair	Poor
Rogue River	Fair	Poor
Sucker Creek	Fair	Poor
Table Rock Irrig. Dist.	Average	Fair
Thompson Creek	Fair	Poor
Wagner Creek	Fair	Poor
Williams Creek	Fair	Poor

RESERVOIR STORAGE (1,000 Ac. Ft.)

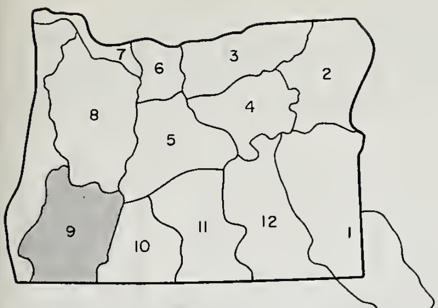
RESERVOIR	USABLE CAPACITY	MEASURED (First of Month)		
		THIS YEAR	LAST YEAR	1943-57 AVERAGE
Emigrant Gap	39.0	17.2	0.0[h]	6.1
Fish Lake	7.8	3.8	4.2	5.3
Fourmile Lake	16.1	3.2	4.4	8.7
Howard Prairie	60.0	14.5	7.7	- -
Hyatt Prairie	16.1	2.8	7.0	7.0

STREAMFLOW FORECASTS[a] (1,000 Ac. Ft.)

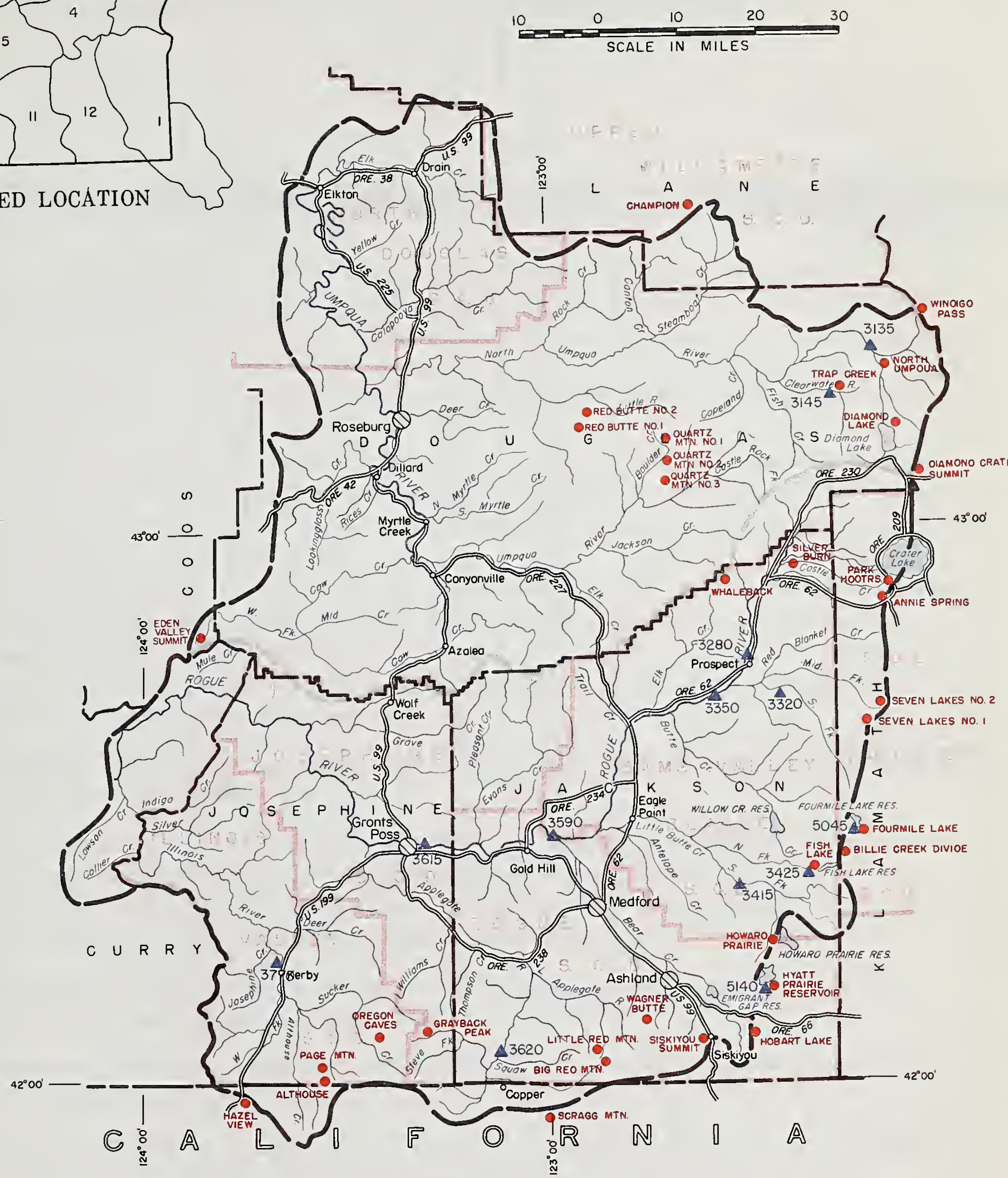
FORECAST POINT NO.	FORECAST POINT NAME	FORECAST THIS YEAR	FORECAST PERIOD	1943-57 AVERAGE	THIS YEAR AS PERCENT OF AVERAGE[b]
3620	Applegate near Copper	90	April-Sept.	131	69
3145	Clearwater above Trap Creek[d]	47	April-Sept.	73	64
5045	Fourmile Lake net Inflow[d]	4.6	April-Sept.	7.4	62
5140	Hyatt Reservoir net Inflow[d]	2.0	April-Sept.	6.2	32
3770	Illinois River at Kerby[d]	125	April-Sept.	196	64
3425	Little Butte, N. Fk. at Fish Lake nr. Lake Cr.[d]	9.9	April-Sept.	16.9	59
3415	Little Butte, S. Fk. near Lake Creek	24	April-July	42	57
	Note: Minimum flow will drop to 100 c.f.s. by May 10.				
3280	Rogue above Prospect	245	April-Sept.	351	70
		202	April-July	293	69
3320	Rogue, South Fork near Prospect[d]	59	April-Sept.	83	69
		48	April-July	71	68
3350	Rogue below South Fork	517	April-Sept.	749	69
		413	April-July	608	68
3590	Rogue at Raygold near Central Point	685	April-Sept.	1004	68
	Note: Minimum flow will drop to 2000 c.f.s. by about May 31 and to 900 c.f.s. by about August 15th. If summer rainfall and temperatures are average the minimum flow will not fall below 875 c.f.s.	573	April-July	842	68
3615	Rogue at Grants Pass	653	April-Sept.	974	67
3135	Umpqua, North blw. Lemolo Res. near Toketee Falls[d]	125	April-Sept.	186	67

(a) Assuming normal meteorological conditions. (b) 1943-57, 15 year period. (c) Not scheduled. (d) Corrected to natural flow. (e) Aerial snow depth gage; water content estimated. (f) Report delayed. (g) Not Surveyed. (h) Construction. (i) 7 of 18 sampling points. (j) Partly estimated.

ROGUE, UMPQUA WATERSHEDS



WATERSHED LOCATION



LEGEND

▬ ▬	Watershed Boundary
— —	Sub-watershed Boundary
— —	Soil Conservation District Bdry.
— — —	County Boundary
▲	Forecast Point
●	Snow Course

SNOW

SNOW COURSE		CURRENT INFORMATION			PAST RECORD		
					WATER CONTENT (Inches)		
NAME	ELEVATION	DATE OF SURVEY	SNOW DEPTH (Inches)	WATER CONTENT (Inches)	LAST YEAR	1943-57 AVERAGE	YEARS IN AVERAGE [6]
Althouse	4530	2/24	2	0.7	4.1	5.8	15
Annie Spring	6018	2/25	85	28.2	29.0	41.0	15
Beaver Dam Creek	5100	2/27	10	2.3	11.5	- -	0
Big Red Mountain	6500	2/26	55	19.6	26.4	29.3	9
Billie Creek Divide	5300	2/23	33	11.5	16.6	23.4	14
Champion	4500	3/1	34	8.4	23.7	24.7	15
Cold Springs Camp	6100	2/23	62	22.3	21.5	- -	0
Deadwood Junction	4600	2/27	16	3.8	10.3	- -	0
Diamond-Crater Summit	5800	2/20	62	21.5	21.4	- -	0
Diamond Lake	5315	2/20	36	11.0	14.9	23.0	15
Eden Valley Summit	2390	g					
Fish Lake	4865	2/27	17	4.2	9.3	11.5	14
Fourmile Lake	6000	2/27	48	19.4	- -	23.4	6
Grayback Peak	6000	2/28	29	8.5	24.1	23.4	15
Hazel View	2500	2/24	0	0.0	0.0	- -	3
Hobart Lake	5010	f					
Howard Prairie	4500	2/27	11	2.6	8.8	- -	0
Hyatt Prairie Reservoir	4900	2/27	10	1.7	9.6	10.2	14
Little Red Mountain	6500	3/2	42	14.3	22.4	20.6	8
North Umpqua	4215	2/22	11	2.8	10.3	15.1	5
Page Mountain	4045	2/24	0	0.0	1.2	- -	3
Park Headquarters	6450	2/25	104	40.3	34.1	53.4	14
Red Butte #1	4560	2/27	20	4.3	16.3	- -	0
Red Butte #2	4000	2/27	12	2.7	5.9	- -	0
Red Butte #4	3000	2/27	8	1.6	- -	- -	0
Red Butte #5	2500	2/27	2	0.4	- -	- -	0
Rye Spring Spur	5000	2/27	13	3.1	12.0	- -	0
Seven Lakes #1	6800	2/22	93	36.0	35.0	48.8	9
Seven Lakes #2	6200	2/22	74	26.9	26.3	35.9	9
Silver Burn	3720	2/26	7	1.7	12.0	13.3	15
Siskiyou Summit	4630	2/26	3	0.6 [j]	7.4	6.8	13
South Fork Canal	3500	2/26	0	0.0	T	3.4	15
Trap Creek	3800	2/22	4	0.6	10.4	- -	3
Wagner Butte	6900	f					
Whaleback	5140	2/24	48	16.5	24.3	34.8	10
Windigo Pass	5800	2/21	71	27.2	22.4	43.8	7

WATER SUPPLY OUTLOOK
KLAMATH WATERSHEDS
OREGON

as of
MARCH 1, 1961

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE . OREGON AGRICULTURAL EXPERIMENT STATION and OREGON STATE ENGINEER

GENERAL OUTLOOK - Although a warm, wet February has raised the hopes of Klamath Basin farmers for an improved irrigation water supply outlook, the situation is now more gloomy than a month ago. While runoff from warm rains and melting snows has encouragingly boosted reservoired water supplies, it has, at the same time, reduced the possibility of good spring and summer streamflow and the water outlook remains only "fair" for most water users.

SNOW COVER - Water content of the mountain snowpack is 60 percent of the 1943-57 average and only 83 percent of last year at this date. Warm February storms have destroyed the snowpack at low elevations but have made near normal increase in the snowpack at the high elevations.

SOIL MOISTURE - Moisture penetration in the top four feet of the soil mantle has been increased throughout the basin. Penetration on the east side of the basin is now greater than 36 inches in most soils.

RESERVOIR STORAGE - Stored water in Upper Klamath Lake is about average and is 124 percent of last year on March 1.

Storage in Clear Lake is 115,200 acre feet (51 percent of average) compared with 166,600 a.f. at this date last year.

Gerber Reservoir has only 12,600 acre feet in storage (33 percent of average), but this is greater than the 8,600 acre feet held on March 1st last year.

STREAMFLOW - Inflow into Upper Klamath Lake* was about normal during February but has averaged only 87 percent of normal since October 1st.

Streamflow in Klamath Basin during the 1961 irrigation season will probably be slightly less than experienced last year.

Forecasted inflow to Upper Klamath Lake for the April-September period is 65 percent of the 1943-57 average.

The Williamson River is expected to discharge 64 percent average during this same six month period and the Sprague River at the rate of 51 percent of average.

Inflow into Gerber and Clear Lake Reservoirs April through September will be much lower, about 40 and 30 percent of the average.

*Preliminary data from California-Oregon Power Co., Medford, Oregon

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WATER SUPPLY OUTLOOK

expressed as "Poor", "Fair" "Average" or "Excellent"

STREAM or AREA	FLOW PERIOD	
	SPRING SEASON	LATE SEASON
Ft. Klamath Valley	Fair	Fair
Lost River (Clear Lake)	Fair	Fair
Lost River (Gerber)	Fair	Fair
Lost River (Willow Res.)	Fair	Poor
Sprague River	Fair	Poor
Upper Klamath Lake	Fair	Fair
Williamson River	Fair	Fair

RESERVOIR STORAGE (1,000 Ac. Ft.)

RESERVOIR	USABLE CAPACITY	MEASURED (First of Month)		
		THIS YEAR	LAST YEAR	1943-57 AVERAGE
Clear Lake	440.2	115.2	166.6	224.0
Gerber	94.0	12.6	8.6	38.3
Upper Klamath Lake	584.0	415.4	334.2	390.0

STREAMFLOW FORECASTS[a] (1,000 Ac. Ft.)

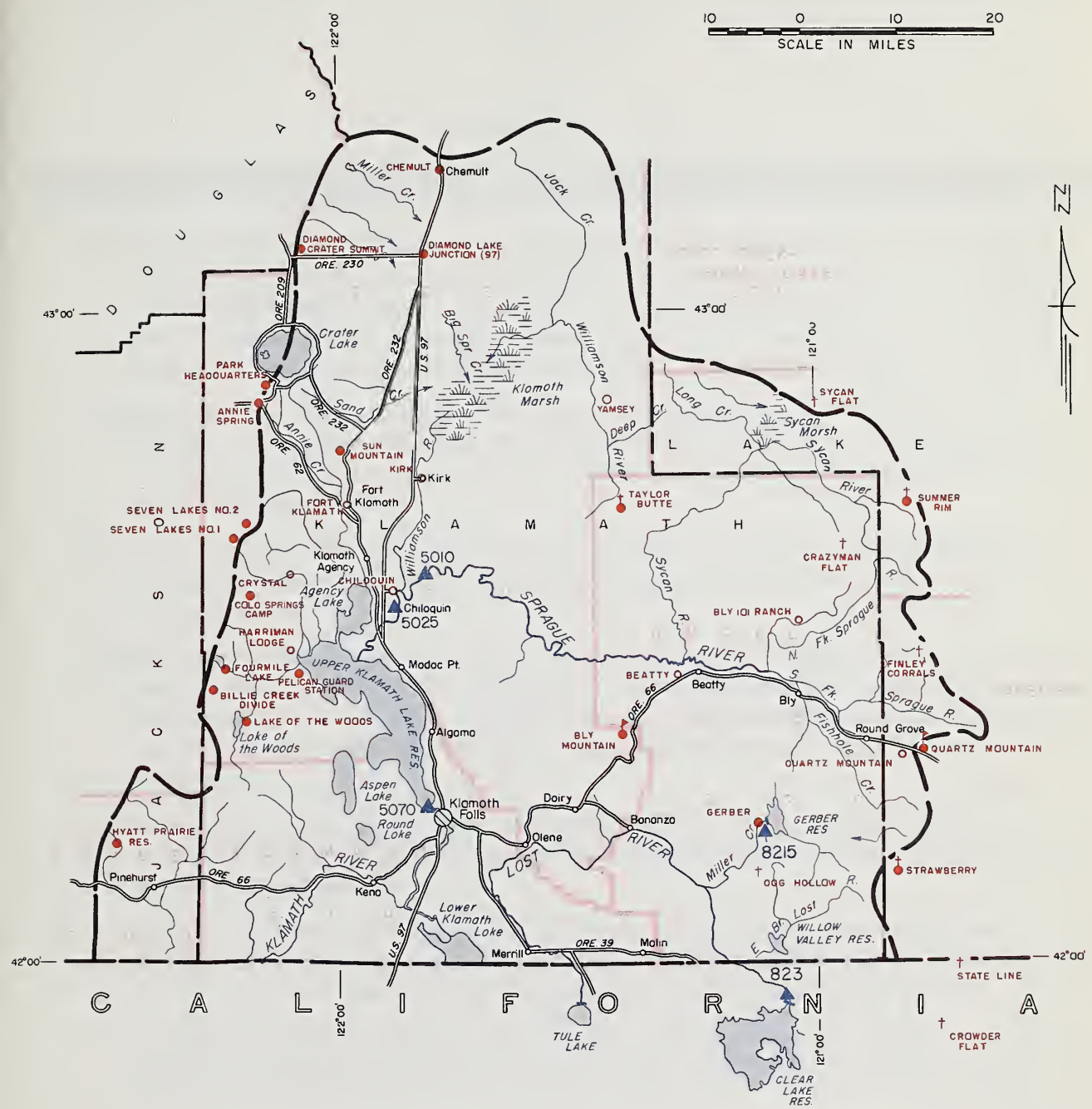
FORECAST POINT		FORECAST THIS YEAR	FORECAST PERIOD	1943-57 AVERAGE	THIS YEAR AS PERCENT OF AVERAGE[b]
NO.	NAME				
923	Clear Lake Reservoir inflow[g]	15	April-Sept.	50	30
		35	March-July	88	40
8215	Gerber Reservoir inflow[g]	10	April-Sept.	25	40
		20	March-July	44	45
5010	Sprague near Chiloquin	150	April-Sept.	296	51
5070	Upper Klamath Lake net inflow[g]	410	April-Sept.	632	65
		326	April-July	518	63
5025	Williamson below Sprague River[d]	310	April-Sept.	486	64
		270	April-July	413	65
		305	March-June	472	65

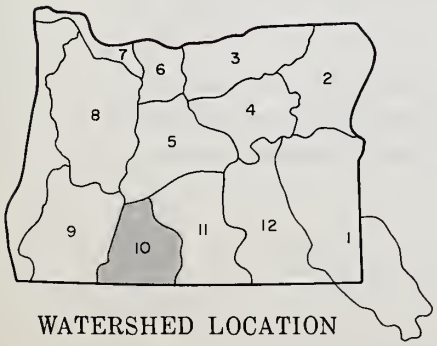
SNOW

SNOW COURSE		CURRENT INFORMATION			PAST RECORD		
NAME	ELEVATION	DATE OF SURVEY	SNOW DEPTH (Inches)	WATER CONTENT (inches)	WATER CONTENT (Inches) LAST YEAR	WATER CONTENT (Inches) 1943-57 AVERAGE	YEARS IN AVERAGE[b]
Annie Spring	6018	2/25	85	28.2	29.0	41.0	15
Beatty (COPCO)	4300	*f*					
Billie Creek Divide	5300	2/23	33	11.5	16.6	23.4	14
Bly Mountain	5090	2/24	11	3.8	5.0	- -	0
Bly 101 Ranch (COPCO)	4800	*f*					
Chemult	4760	2/24	11	4.4	9.3	12.2	15
Chiloquin (COPCO)	4187	2/28	0	0.0	T	1.3	15
Cold Springs Camp	6100	2/23	62	22.3	21.5	- -	0
Crazyman Flat[e]	6100	2/25	21	7.4	7.8	- -	0
Crowder Flat[e]	5200	2/25	2	0.7	3.9	3.5	8
Crystal (COPCO)	4200	2/28	4	1.8	7.3	9.3	15
Diamond-Crater Summit	5800	2/20	62	21.5	21.4	- -	0
Diamond Lake Junction (97)	4600	2/20	T	T	6.3	- -	0
Dog Hollow[e]	4900	2/25	0	0.0	0.0	- -	0
Finley Corrals[e]	6000	2/25	35	12.2	12.3	- -	0
Fort Klamath (COPCO)	4150	2/28	0	0.0	5.5	3.4	15
Gerber	4850	2/28	0	0.0	1.5	3.1	7
Harriman Lodge (COPCO) (Renamed Tomahawk Ski Bowl)	4200	2/28	0	0.0	1.9	4.2	14
Hyatt Prairie Reservoir	4900	2/27	10	1.7	9.6	10.2	14
Kirk (COPCO)	4533	*f*					
Lake of the Woods	4960	2/25	19	8.3	8.1	11.2	15
Park Headquarters	6450	2/25	104	40.3	34.1	53.4	14
Pelican Guard Station	4150	2/23	T	T	3.1	- -	0
Quartz Mountain	5320	2/24	3	1.1	6.5	6.3	15
Quartz Mountain (COPCO)	5504	2/24	6	2.5	6.8	6.5	14
Seven Lakes #1	6800	2/22	93	36.0	35.0	48.8	9
Seven Lakes #2	6200	2/22	74	26.9	26.3	35.9	9
State Line[e]	5750	2/25	14	4.6	8.1	- -	0
Strawberry	5600	2/24	13	4.2	5.8	9.9	11
Summer Rim	7200	2/24	42	13.9	9.7	14.8	13
Sun Mountain	5350	2/21	44	14.6	16.1	25.4	15
Sycan Flat[e]	5500	2/25	9	3.2	7.1	- -	0
Taylor Butte[e]	5100	2/21	5	2.0	4.7	- -	3
Yamsey (COPCO)	4600	*f*					

(a) Assuming normal meteorological conditions. (b) 1943-57, 15 year period. (c) Not scheduled. (d) Corrected to natural flow. (e) Aerial snow depth gage; water content estimated. (f) Report delayed. (g) From COPCO or USBR records of inflow. (h) Flashboards increase capacity to 513.0 (i) Water content partly estimated.

KLAMATH WATERSHEDS





WATERSHED LOCATION

LEGEND

- Watershed Boundary
- Sub-watershed Boundary
- Soil Conservation District Bdry.
- County Boundary
- Forecast Point
- Snow Course
- Aerial Snow Depth Gage
- COPCO Snow Station
- Soil Moisture Station

"The Conservation of Water begins with the Snow Survey"

WATER SUPPLY OUTLOOK
LAKE COUNTY, GOOSE LAKE WATERSHEDS
OREGON

as of

MARCH 1, 1961

U.S.DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE . OREGON AGRICULTURAL EXPERIMENT STATION and OREGON STATE ENGINEER

GENERAL OUTLOOK - February was too warm and not wet enough in Lake County to improve the mountain snowpack resulting in a "poor" water outlook for irrigated lands in this south central Oregon region. The snowpack is the "water reservoir" upon which all lands depend for natural streamflow. Some lands are served from man-made reservoirs but even then supplies are exceedingly "short" this season.

SNOW COVER - Water content of the mountain snowpack is now 57 percent of the March 1 average and only 68 percent of last year at this date. Conspicuously absent is the usual low-elevation snow which normally plays an important part in the total water outlook.

SOIL MOISTURE - Wetness of the soil mantle (top 4 feet) has improved somewhat in the past month with moisture penetrating nearly three feet in upper parts of the watersheds.

RESERVOIR STORAGE - Stored water on March 1st was 1,235 acre feet in Cottonwood and 12,640 acre feet in Drews Reservoirs. One year ago these same reservoirs held about 600 a.f. and 10,900 a.f. respectively. Further inflow to these reservoirs is dependent almost entirely on rainfall since there is virtually no snow on their watersheds.

STREAMFLOW - Water supply forecasts for flow of Lake County streams during the irrigation season are all very low, ranging from 63 percent of the 1943-57 average down to 32 percent.

Inflow to Drews Reservoir for the March-July period is expected to be about 15,000 acre feet or 32 percent of average. With present storage this would provide a total of less than 30,000 acre feet for the Lakeview Water Users.

Deep Creek, Honey Creek and Twentymile Creek are expected to flow about 63 percent to 60 percent of the 15 year average (1943-57) for the April-June period.

Flow of the Chewaucan River during April-June is forecast at 67 percent of the average.

Flow of Beech Creek, Bridge, Silver and Duncan Creek as well as Moss Creek, Willow and Crooked Creeks will be very short this year unless favorable conditions of temperature and rainfall act together to improve the situation.

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WATER SUPPLY OUTLOOK

expressed as "Poor", "Fair" "Average" or "Excellent"

STREAM or AREA	FLOW PERIOD	
	SPRING SEASON	LATE SEASON
Chewaucan River	Fair	Fair
Crooked Creek	Fair	Poor
Deep Creek	Fair	Poor
Dry Creek	Fair	Poor
East Side Goose Lake	Fair	Poor
Guano Lake	Fair	Poor
Honey Creek	Fair	Poor
Lakeview Water Users Assn.	Fair	Poor
Rock Creek (Hart Mtn.)	Fair	Poor
Silver-Buck Creeks	Fair	Poor
Summer Lake	Fair	Fair
Thomas Creek	Fair	Poor
Twentymile Creek	Fair	Poor
Warner Lakes	Fair	Poor

RESERVOIR STORAGE (1,000 Ac. Ft.)

RESERVOIR	USABLE CAPACITY	MEASURED (First of Month)		
		THIS YEAR	LAST YEAR	1943-57 AVERAGE
Cottonwood	4.1	1.2	0.6	0.7
Drew	63.0	12.6	10.9	40.7

STREAMFLOW FORECASTS[a] (1,000 Ac. Ft.)

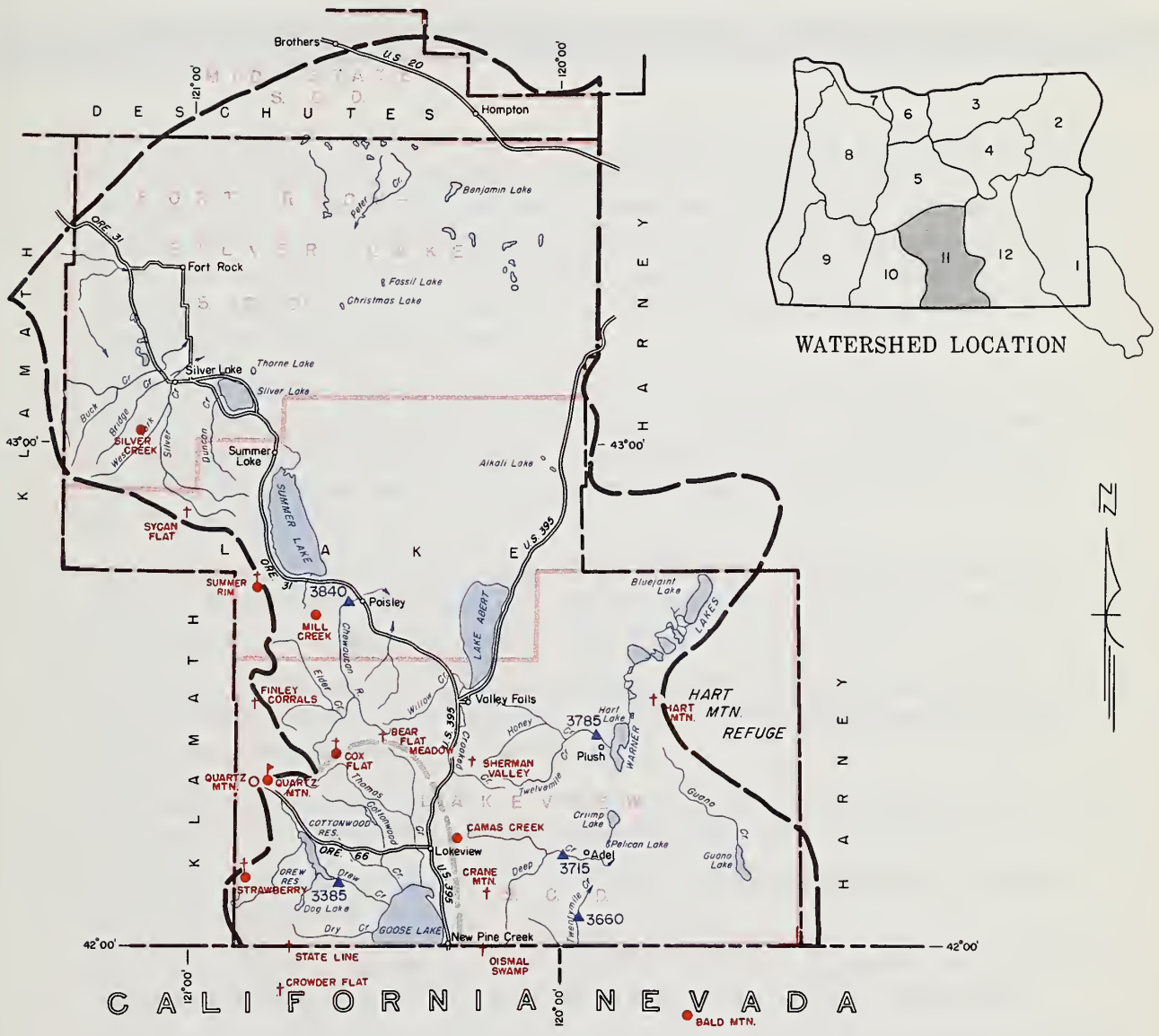
FORECAST POINT		FORECAST THIS YEAR	FORECAST PERIOD	1943-57 AVERAGE	THIS YEAR AS PERCENT OF AVERAGE[b]
NO.	NAME				
3840	Chewaucan near Paisley	55	April-June	82	67
		65	March-June	92	71
3715	Deep above Adel	45	April-June	71	63
3385	Drew Reservoir net Inflow	7	April-July	34	21
		15	March-July	47	32
3785	Honey near Plush	10	April-June	16.3	61
3660	Twentymile near Adel	12	April-June	20	60

SNOW

SNOW COURSE		CURRENT INFORMATION			PAST RECORD		
NAME	ELEVATION	DATE OF SURVEY	SNOW DEPTH (Inches)	WATER CONTENT (Inches)	WATER CONTENT (Inches) LAST YEAR	WATER CONTENT (Inches) 1943-57 AVERAGE	YEARS IN AVERAGE[b]
Bald Mountain (Nev.)	6720	2/28	6	2.0	6.5	3.3	15
Bear Flat Meadow [e]	5900	2/25	22	7.7	8.4	- -	0
Camas Creek	5720	2/25	18	7.1	11.4	10.8	14
Cox Flat [e]	5750	2/25	3	1.0	7.1	- -	0
Crane Mountain [e]	6020	2/25	6	2.1	5.8	- -	0
Crowder Flat [e]	5200	2/25	2	0.7	3.9	3.5	8
Dismal Swamp [e] (Calif.)	7000	2/25	37	13.0	11.7	- -	0
Finley Corrals [e]	6000	2/25	35	12.2	12.3	- -	0
Hart Mountain [e]	6350	2/25	0	0.0	3.2	- -	0
Mill Creek	6200	2/27	19	6.4	6.4	8.1	15
Mosquito Lake [e] (Little Bally Mtn.)	6600	2/25	5	1.6	- -	- -	0
Quartz Mountain (COPCO)	5504	2/24	6	2.5	6.8	6.5	14
Quartz Mountain	5320	2/24	3	1.1	6.5	6.3	15
Sherman Valley [e]	6600	2/25	28	9.8	11.0	- -	0
Silver Creek	4900	2/27	0	0.0	2.6	3.7	15
State Line [e]	5750	2/25	14	4.6	8.1	- -	0
Strawberry	5600	2/24	13	4.2	5.8	9.9	11
Summer Rim	7200	2/24	42	13.9	9.7	14.8	13
Sycan Flat [e]	5500	2/25	9	3.2	7.1	- -	0

(a) Assuming normal meteorological conditions. (b) 1943-57, 15 year period. (c) Not scheduled. (d) Corrected to natural flow. (e) Aerial snow depth gage; water content estimated. (f) Report delayed.

LAKE COUNTY, GOOSE LAKE WATERSHEDS



"The Conservation of Water begins with the Snow Survey"

WATER SUPPLY OUTLOOK
HARNEY BASIN WATERSHEDS
OREGON

as of
MARCH 1, 1961

U.S.DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE . OREGON AGRICULTURAL EXPERIMENT STATION and OREGON STATE ENGINEER

GENERAL OUTLOOK - The 1961 water supply outlook for Harney Basin has not been improved during February and remains only "fair" to "poor". Warmer than normal temperatures accompanied by only near normal precipitation did not improve the snow cover at higher elevations and caused a "loss" of snow cover at low elevations. All irrigators will have short water supplies late in the season this year and those depending on streams heading at low elevations are likely to experience shortages much earlier than normal.

SNOW COVER - Water content of the mountain snow cover in this area is only 69 percent of last year and 56 percent of the 1943-57 average. Warm temperatures during February caused storms to deposit rain rather than snow on lower elevation snow courses over the basin, causing a conspicuously low snow cover at all but the highest elevations.

Snow accumulation has usually reached about 95 percent of the year's total by March 1 in this area. This year only 52 percent of an average year's total has been accounted for by recent snow surveys.

SOIL MOISTURE - Moisture has penetrated the top 1 to 2 feet of the soil mantle over most of Harney Basin. Warm temperatures allowing the soil surface to thaw has helped moisture penetration this winter.

Electronic soil moisture stations in the area now indicate an average of 74 percent of capacity and 110 percent of last year at this time.

STREAMFLOW - Forecasts of streamflow for Harney Basin range from 37 to 67 percent of the 1943-57 period.

The Silvies River is expected to flow 40,000 acre feet or 37 percent for the April through September season and 55,000 acre feet for the March-June period.

The Blitzen forecast indicates 45,000 acre feet is expected for the April-September period and 5,700 acre feet is expected during the same period on Trout Creek.

Irrigators in this area are likely to have "short" late season water supplies with most streams falling off earlier than usual.

Report prepared by
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U.S. DEPARTMENT OF AGRICULTURE - SOIL CONSERVATION SERVICE
209 S.W. FIFTH AVENUE - PORTLAND 4, OREGON

WATER SUPPLY OUTLOOK expressed as "Poor", "Fair" "Average" or "Excellent"

STREAM or AREA	FLOW PERIOD	
	SPRING SEASON	LATE SEASON
Catlow Valley	Fair	Poor
Cow Creek	Fair	Poor
Donner und Blitzen River	Fair	Poor
Mill-Coffeepot Creeks	Fair	Poor
Rattlesnake Creek	Fair	Poor
Silver Creek	Fair	Poor
Silvies River	Fair	Poor
Soldier-Prather Creek	Fair	Poor
Trout Creek	Fair	Poor
Whitehorse Creek	Fair	Poor

RESERVOIR STORAGE (1,000 Ac. Ft.)

RESERVOIR	USABLE CAPACITY	MEASURED (First of Month)		
		THIS YEAR	LAST YEAR	1943-57 AVERAGE

STREAMFLOW FORECASTS[a] (1,000 Ac. Ft.)

FORECAST POINT		FORECAST THIS YEAR	FORECAST PERIOD	1943-57 AVERAGE	THIS YEAR AS PERCENT OF AVERAGE[b]
NO.	NAME				
3960	Donner und Blitzen near Frenchglen	45	April-Sept.	67	67
3935	Silvies near Burns	40	April-Sept.	107	37
		55	March-June	124	44
4065	Trout near Denio	5.7	April-Sept.	9.2	62

AVAILABLE SOIL MOISTURE

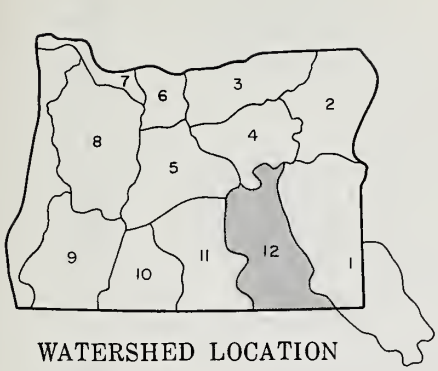
STATION		PROFILE (Inches)		SOIL MOISTURE (Inches)			
NAME	ELEVATION	DEPTH	AVAILABLE CAPACITY	DATE	THIS YEAR	LAST YEAR	2 YEARS AGO
Blue Mountain Springs	5900	42	12.0	2-23-61	4.5	- -	- -
Fish Creek	7600	48	9.5	c			
Folly Farm	4450	36	8.3	2-15-61	6.2	6.7	4.6 j
Silvies	6900	48	10.3	c			
Snow Mountain	6300	48	10.4	c			
Starr Ridge	5150	36	6.1	2-15-61	5.0	5.1	- -
Stinking Water	4800	48	11.7	2-15-61	11.2	10.3	11.1 j
Willow-Bald	5000	24	4.3	2-15-61	4.3	2.2	- -

SNOW

SNOW COURSE		CURRENT INFORMATION			PAST RECORD		
NAME	ELEVATION	DATE OF SURVEY	SNOW DEPTH (Inches)	WATER CONTENT (inches)	WATER CONTENT (Inches) LAST YEAR	WATER CONTENT (Inches) 1943-57 AVERAGE	YEARS IN AVERAGE[b]
Blue Mountain Spring	5900	2/23	38	10.9	12.8	15.2	15
Call Meadows e	5340	2/28	8	2.6	5.9	- -	0
Delintment Lake	5600	c					
Denio Creek e	6000	2/25	0	0.0	0.8	- -	0
Disaster Peak	6500	2/25	28	9.3	9.2	15.7	9
Emigrant Butte	5000	c					
Fish Creek e	7900	2/25	51	16.8	12.9	- -	0
Hart Mountain e	6350	2/25	0	0.0	3.2	- -	0
Idlewild Camp	5200	2/27	11	2.5	5.5	5.7	15
Izee Summit	5293	2/24	15	5.4	6.8	8.1	15
Lake Creek	5120	2/23	22	7.3	9.2	10.7	15
Oregon Canyon e	6950	2/28	14	4.6	7.6	- -	0
Riddle Creek e (Buck Pasture)	5700	2/28	4	1.3	3.4	- -	0
Rock Spring	5100	2/27	8	1.7	6.7	5.9	15
Silvies e	6900	2/25	19	6.3	7.6	- -	0
Snow Mountain	6300	c					
Starr Ridge	5150	2/24	8	2.8	5.7	6.0	15
Stinking Water	4800	3/1	0	0.0	5.2	4.2	12
Trout Creek e	7800	2/28	16	5.3	5.6	- -	0
"V" Lake e	6600	2/25	6	2.0	5.6	- -	0

(a) Assuming normal meteorological conditions. (b) 1943-57, 15 year period. (c) Not scheduled. (d) Corrected to natural flow. (e) Aerial snow depth gage; water content estimated. (f) Report delayed. (g) Not surveyed. (h) Partly estimated. (i) No Fall measurement. (j) Nearest current data.

HARNEY BASIN WATERSHEDS



WATERSHED LOCATION

10 0 10 20 30
SCALE IN MILES

LEGEND

- Watershed Boundary
- Sub-watershed Boundary
- Soil Conservation District Bdry.
- County Boundary
- Forecast Point
- Snow Course
- Aeriol Snow Depth Goge
- Soil Moisture Station

OR-12c

"The Conservation of Water begins with the Snow Survey"

Map and Index to OREGON SNOW COURSES

OWYHEE, MALHEUR WATERSHEDS (1)

Owyhee River

NUMBER	NAME	SEC.	TWP.	RGE.	ELEV.
[illegible]	Antelope Ridge (Ida)	32	8S	1W	5900
[illegible]	Barren Valley	26	27S	38E	4200
[illegible]	Battle Creek (Ida)	10	11S	1E	5700
[illegible]	Bear Creek (Nev)	31	46N	55E	7800
[illegible]	Big Bend (Nev)	30	45N	56E	6700
[illegible]	Buckskin, Lower (Nev)	25	45N	39E	6700
[illegible]	Buckskin, Upper (Nev)	11	45N	39E	7200
[illegible]	*Bull Basin (Ida)	29	12S	5W	5470
[illegible]	Disaster Peak (Nev)	8	47N	34E	6500
[illegible]	Fish Creek	1	33S	33E	7900
[illegible]	Fox Creek (Nev)	33	46N	58E	6800
[illegible]	Fry Canyon (Nev)	31	43N	54E	6700
[illegible]	Gold Creek (Nev)	31	45N	56E	6600
[illegible]	Granite Peak (Nev)	22	44N	39E	7800
[illegible]	*Horse Pasture (Ida)	31	8S	2W	5800
[illegible]	Jack Creek, Lower (Nev)	18	42N	53E	6800
[illegible]	Jack Creek, Upper (Nev)	9	42N	53E	7250
[illegible]	Jack Peak (Nev)	28	42N	53E	8420
[illegible]	*Juniper Mtn. (Ida)	32	11S	4W	6500
[illegible]	Lookout Butte	2	40S	47E	5650
[illegible]	*Louse Canyon	27	40S	44E	6440
[illegible]	Martin Creek (Nev)	18	44N	40E	6700
[illegible]	Midas (Nev)	15	39N	46E	7200
[illegible]	Mud Flat (Ida)	34	9S	2W	5500
[illegible]	*Nickel Sheep Camp (Ida)	23	10S	4W	5450
[illegible]	*Oregon Canyon	6	40S	40E	6950
[illegible]	*Quinn Ridge (Nev)	9	47N	41E	6300
15H6	Rodeo Flat (Nev)	36	43N	53E	6800
15H3	76 Creek (Nev)	6	44N	58E	7100
17F1	Shumway Ranch	29	23S	39E	4400
16F3	Silver City (Ida)	6	5S	3W	6400
18G1	Silvies	35	32S	32½E	6900
16G1	South Mountain No. 2 (Ida)	35	7S	5W	6340
15H9	Taylor Canyon (Nev)	35	39N	53E	6200
15H8	Tremewan Ranch (Nev)	9	39N	55E	5700
16G4	*Triangle (Ida)	25	7S	3W	5150
18G5	*Trout Creek	10	41S	38E	7700
18G7	*"V" Lake	31	35½S	32½E	6600

Malheur River

NUMBER	NAME	SEC.	TWP.	RGE.	ELEV.
18E14	Barney Creek	16	14S	36E	5950
18E16	Blue Mountain Spring	21	15S	35E	5900
17E3	Bonita	5	16S	40E	4600
18E21	*Bully Creek	10	17S	37E	5300
18F7	*Call Meadows	29	20S	33E	5340
17E2	Clover Creek	36	16S	39E	4100
17F2	*Cottonwood-Indian	10	19S	39E	4320
18E19	Crane Prairie	24	16S	34E	5375
18E20	Eldorado Pass	20	14S	38E	4600
18E26	*Flag Prairie	32	16S	36E	4750
18E18	Lake Creek	10	16S	33½E	5120
18F6	Riddle Creek	21	29S	35E	5800
18F1	Rock Spring	23	18S	32E	5100
17F1	Shumway Ranch	29	23S	39E	4400
18F4	Stinking Water	33	21S	34E	4800
18E22	*Logan Valley	13	16S	33½E	5100

BURNT, POWDER, PINE, GRANDE RONDE, IMNAHA WATERSHEDS (2)

Burnt River

NUMBER	NAME	SEC.	TWP.	RGE.	ELEV.
18E14	Barney Creek	16	14S	36E	5950
18E13	Blue Mountain Summit	6	12S	36E	5098
17E1	Dooley Mountain	32	11S	40E	5430
18E20	Eldorado Pass	20	14S	38E	4600
18E8	Gold Center	21	9S	36E	5340
18E9	Tipton	34	10S	35½E	5100

Powder River

NUMBER	NAME	SEC.	TWP.	RGE.	ELEV.
18E1	Anthony Lake	18	7S	37E	7125
18E5	Bourne	33	8S	37E	5800
17E1	Dooley Mountain	32	11S	40E	5430
18E3	Eilertson Meadows	18	8S	38E	5400
18E8	Gold Center	21	9S	36E	5340
18E6	Goodrich Lake	4	9S	38E	6775
18E23	Little Alps	10	7S	37E	6200
18D10	Summit Springs	9	6S	37E	6000
17D7	Taylor Green	3	6S	42E	5740

Pine Creek

NUMBER	NAME	SEC.	TWP.	RGE.	ELEV.
17D8	Schneider Meadows	35	6S	45E	5400

Grande Ronde River

NUMBER	NAME	SEC.	TWP.	RGE.	ELEV.
17D1	Aneroid Lake No. 1	16	4S	45E	7480
17D2	Aneroid Lake No. 2	16	4S	45E	7000
18E1	Anthony Lake	18	7S	37E	7125
17D10	*Bald Mountain	14 & 15	4S	41E	6700
18D9	Beaver Reservoir	8	5S	37E	5340
18D8	County Line	28	4S	34E	4800
18D6	Lucky Strike	28	3S	32E	5050
18D5	Meacham	24 & 25	1S	35E	4300
17D6	Moss Spring	28	3S	41E	5850
18D7	Schoolmarm	28	4S	34E	4775
17D7	Taylor Green	3	6S	42E	5740
18D3	Tollgate	32	4N	38E	5070

Imnaha River

NUMBER	NAME	SEC.	TWP.	RGE.	ELEV.
17D1	Aneroid Lake No. 1	16	4S	45E	7480
17D2	Aneroid Lake No. 2	16	4S	45E	7000

UMATILLA, WALLA WALLA, WILLOW, ROCK, LOWER JOHN DAY WATERSHEDS (3)

Umatilla River

NUMBER	NAME	SEC.	TWP.	RGE.	ELEV.
19D2	Arbuckle Mountain	33	4S	29E	5400
18D12	Battle Mountain Summit	29	3S	31E	4340
18D4	Emigrant Springs	29	1N	35E	3925
18D6	Lucky Strike	28	3S	32E	5050
18D15	Pearson Creek	31	2S	33E	3000
18D5	Meacham	24 & 25	1S	35E	4300
18D3	Tollgate	32	4N	38E	5070
18D13	Walla Walla Diversion	22	6N	38E	2400

Walla Walla River

NUMBER	NAME	SEC.	TWP.	RGE.	ELEV.
18D3	Tollgate	32	4N	38E	5070

Willow Creek

NUMBER	NAME	SEC.	TWP.	RGE.	ELEV.
19D2	Arbuckle Mountain	33	4S	29E	5400

UPPER JOHN DAY WATERSHEDS (4)

Upper John Day River

NUMBER	NAME	SEC.	TWP.	RGE.	ELEV.
18E1	Anthony Lake	18	7S	37E	7125
19D2	Arbuckle Mountain	33	4S	29E	5400
18D12	Battle Mountain Summit	29	3S	31E	4340
19E2	Beech Creek Summit	4	12S	30E	4800
18E16	Blue Mountain Spring	21	15S	35E	5900
18E13	Blue Mountain Summit	6	12S	36E	5098
19E3	Derr	14	13S	23E	5670
18E11	Dixie Springs	28	11S	34E	6650
18E8	Gold Center	21	9S	36E	5340
18E24	*Indian Cr. Butte	5	15S	33E	6550
19E9	Izee Summit	28	16S	29E	5175
18D6	Lucky Strike	28	3S	32E	5050
20E1	Marks Creek	25	12S	19E	4540
20E2	Ochoco Meadows	21	13S	20E	5200
18E7	Olive Lake	14	9S	33½E	6000
18D7	Schoolmarm	28	4S	34E	4775
19F1	Snow Mountain	1	19S	26E	6300
19E7	Starr Ridge	20	15S	31E	5150
18E9	Tipton	34	10S	35½E	5100
18E25	Williams Ranch	20	15S	32E	4500

UPPER DESCHUTES, CROOKED WATERSHEDS (5)

Upper Deschutes River

NUMBER	NAME	SEC.	TWP.	RGE.	ELEV.
21E11	Black Pine Spring	14	16S	9E	4600
21F8	Caldwell Ranch	30	21S	8E	4400
22F3	Cascade Summit	7	23S	6E	4880
21F7	Charlton Lake	23	21S	6E	5750
21F11	Chemult	21	27S	8E	4760
21F14	Fire Road	36	21S	11E	5050
21E6	Hogg Pass	24	13S	7½E	4755
21F4	Hungry Flat	30	18S	11E	4400
21F6	Irish-Taylor	25	20S	6E	5500
21F17	Howich	29	25S	25S	4700
21F10	New Crescent Lake	11	24S	6E	4800
21F19	New Dutchman Flat #2	21	18S	9E	6400
21F13	Paulina Lake	34	21S	12E	6330
21F15	Paulina Prairie	28	21S	11E	4285
21F3	Tangent	28	18S	10E	5400
21E13	Three Creek Meadows	3	17S	9E	5600
22F2	Waldo Lake	15	21S	6E	5500
22F14	Willamette Pass	33	24S	5½E	5600
22F15	Windigo Pass	20	25S	6E	5800

Crooked River

NUMBER	NAME	SEC.	TWP.	RGE.	ELEV.
19E3	Derr	14	13S	23E	5670
20E1	Marks Creek	25	12S	19E	4540
20E2	Ochoco Meadows	21	13S	20E	5200
19F1	Snow Mountain	1	19S	26E	6300
19E4	Tamarack	8	15S	25E	4800

HOOD, MILE CREEKS, LOWER DESCHUTES WATERSHEDS (6)

Hood River

NUMBER	NAME	SEC.	TWP.	RGE.	ELEV.
21D6	Brooks Meadows	2	2S	10E	4300
21D25	Cooper Spur	6	2S	10E	3350
21D1	Greenpoint Reservoir	28	2N	9E	3400
21D20	Knebal Springs	31	1S	11E	3850
21D23	Parkdale	6	1S	10E	1940
21D8	Phlox Point	6	3S	9E	5600
21D4	Red Hill	21	1S	9E	4400
21D9	Still Creek	25	3S	8½E	3700
21D7	Tilly Jane	15	2S	9E	6000
21D21	Ulrich Ranch Junction	28	1S	11E	3350
21D24	Upper Valley	20	1S	10E	2510

Mile Creeks - Mosier Creek

NUMBER	NAME	SEC.	TWP.	RGE.	ELEV.
21D6	Brooks Meadows	2	2S	10E	4300
21D20	Knebal Springs	31	1S	11E	3850
21D21	Ulrich Ranch Junction	28	1S	11E	3350

Lower Deschutes River

NUMBER	NAME	SEC.	TWP.	RGE.	ELEV.
21D12	Clear Lake	29	4S	9E	3500
21E6	Hogg Pass	24	13S	7½E	4755

LOWER COLUMBIA WATERSHEDS (7)

Sandy River

NUMBER	NAME	SEC.	TWP.	RGE.	ELEV.
21D8	Phlox Point	6	3S	9E	5600
21D9	Still Creek	25	3S	8½E	3700

WILLAMETTE WATERSHEDS (8)

Clackamas River

NUMBER	NAME	SEC.	TWP.	RGE.	ELEV.
21D15	Big Bottom	25	6S	7E	2118
21D13	Clackamas Lake	35	5S	8½E	3400
21D12	Clear Lake	29	4S	9E	3500
21D16	Lake Harriet	4	6S	7E	2045
21D14	Peavine Ridge	14 & 15	6S	7E	3500
21D8	Phlox Point	6	3S	9E	5600
21D9	Still Creek	25	3S	8½E	3700
21D17	Timothy Lake	26	5S	8E	3295

Santiam River

NUMBER	NAME	SEC.	TWP.	RGE.	ELEV.
22E1	Detroit (town)	1	10S	5E	1610
22E2	Detroit Dam	7	10S	5E	1580
21E6	Hogg Pass	24	13S	7½E	4755
21E4	Marion Forks	28	11S	7E	2730
22E3	Mill City	29	9S	3E	826
21E5	Santiam Junction	14	13S	7E	3990
21E3	Whitewater Bridge	28	10S	7E	2175

McKenzie River

NUMBER	NAME	SEC.	TWP.	RGE.	ELEV.
21E8	Dead Horse Grade	13	16S	7E	3800
22E4	Lost Creek Ranch	24	16S	6E	1746
21E7	McKenzie	35	15S	7½E	4800
22E5	McKenzie Bridge	13	16S	5E	1372
22E6	Vida	28	16S	2E	800
21E9	White Branch Slide	15	16S	7E	2800

Middle Fork Willamette River

NUMBER	NAME	SEC.	TWP.	RGE.	ELEV.
22F3	Cascade Summit	7	23S	6E	4880
21F7	Charlton Lake	23	21S	6E	5750
22F6	McCredie Springs	36	21S	4E	2120
22F8	Meridian Dam	13	19S	1W	750
22F7	Oakridge	16	21S	3E	1310
22F5	Railroad Overpass	27	22S	5E	2750
22F4	Salt Creek Falls	33	22S	6E	4000
22F2	Waldo Lake	15	21S	6E	5500
22F14	Willamette Pass	33	24S	5½E	5600

Coast Fork Willamette River

NUMBER	NAME	SEC.	TWP.	RGE.	ELEV.
22F9	Champion	12	23S	1E	4500
22F10	Golden Curry Creek	1	23S	1E	3136
22F13	Layng Creek R. S.	31	21S	1E	1200
22F12	Lund Park	22	22S	1E	1740
22F11	Weaver Creek	35	22S	1E	2440

Mary's River

NUMBER	NAME	SEC.	TWP.	RGE.	ELEV.
23E1	Mary's Peak	21	12S	7W	3620

ROGUE, UMPQUA WATERSHEDS (9)

Rogue River

NUMBER	NAME	SEC.	TWP.	RGE.	ELEV.
23G4	Althouse	17	41S	7W	4530
22G6	Annie Spring	19	31S	6E	6018
22G21	Big Red Mountain	31	40S	1W	6500
22G13	Billie Creek Divide	30	36S	5E	5300
22F19	Diamond-Crater Summit	34	28S	6E	5800
22G14	Fish Lake	3	37S	4E	4865
22G12	Fourmile Lake	9	36S	5E	6000
23G3	Grayback Peak	9	40S	5W	6000
23H1	Hazel View (Cal)	9	48N	4E	2500
22G17	Hobart Lake	17	40S	3E	5010
22G26	Howard Prairie	32	38S	4E	4500
22G16	Hyatt Prairie Reservoir	15	39S	3E	4900
22G22	Little Red Mountain	25	40S	2W	6500
23G6	Oregon Caves	16	40S	6W	4000
23G5	Page Mountain	8	41S	7W	4045
22G5	Park Headquarters	8	31S	6E	6450
22H1	Scragg Mountain (Cal)	9	47N	10W	6200
22G10	Seven Lakes No. 1	3	34S	5E	6800
22G11	Seven Lakes No. 2	26	33S	5E	6200
22G2	Silver Burn	30	30S	4E	3720
22G20	Siskiyou Summit	17	40S	2E	4630
22G9	South Fork Canal	12	33S	3E	3500
22G18	Wagner Butte	1	40S	1W	6900
22G1	Whaleback	3	31S	2E	5140

Umpqua River

NUMBER	NAME	SEC.	TWP.	RGE.	ELEV.
22F9	Champion	12	23S	1E	4500
22F18	Diamond Lake	29	27S	6E	5315
23G7	Eden Valley Summit	10	32S	10W	2390
22F16	North Umpqua	19	26S	6E	4215
22F20	Quartz Mtn. No. 1	2	28S	1E	4500
22F21	Quartz Mtn. No. 2	22	28S	1E	4000
22F22	Quartz Mtn. No. 3	27	28S	1E	3700
22F23	Red Butte No. 1	36	27S	2W	4560
22F24	Red Butte No. 2	30	27S	1W	4000
22F17	Trap Creek	1	27S	4E	3800
22G1	Whaleback	3	31S	2E	5140
22F15	Windigo Pass	20	25S	6E	5800

KLAMATH WATERSHEDS (10)

Klamath River

NUMBER	NAME	SEC.	TWP.	RGE.	ELEV.
22G6	Annie Spring	19	31S	6E	6018
22G13	Billie Creek Divide	30	36S	5E	5300
21G5	Ely Mountain	15 & 22	37S	11E	5090
21F11	Chemult	21	27S	8E	4760
22G24	Cold Springs Camp	12	35S	5E	6100
20G12	*Crazyman Flat	9	34S	15E	6100
20H2	*Crowder Flat (Cal)	30	47N	11E	5200
22F19	Diamond-Crater Summit	34	28S	6E	5800
21F18	Diamond Lake Jct. (97)	1	29S	7E	4600
21G6	*Dog Hollow	1	40S	14E	4900
20G14	*Finley Corrals	11	36S	10E	6000
22G12	Fourmile Lake	9	36S	5E	6000
21G4	Gerber	12	39S	13E	4850
22G16	Hyatt Prairie Reservoir	15	39S	3E	4900
22G26	Howard Prairie	32	38S	4E	4500
22G15	Lake of the Woods	11	37S	5E	4960
22G5	Park Headquarters	8	31S	6E	6450
22G25	Pelican Guard Station	9	36S	6E	4150
20G6	Quartz Mountain	2	38S	16E	5320
22G10	Seven Lakes No. 1	3	34S	5E	6800
22G11	Seven Lakes No. 2	26	33S	5E	6200
20H1	*State Line (Cal)	21	48N	11E	5750
20G9	Strawberry	4	40S	16E	5600
20G2	Summer Rim	15	33S	16E	7200
21G2	Sun Mountain	22	32S	7½E	5350
20G13	*Sycan Flat	25	31S	14E	5500
21G3	Taylor Butte	16	33S	11E	5100

The California Oregon Power Company's Snow Stations

NUMBER	NAME	SEC.	TWP.	RGE.	ELEV.
1	Beatty (COPCO)	22	36S	12E	4300
10	Ely 101 Ranch (COPCO)	22	35S	14E	4800
3	Chiloquin (COPCO)	34	34S	7E	4187
4	Crystal (COPCO)	26	34S	6E	4200
5	Fort Klamath (COPCO)	22	33S	7½E	4150
8	Harriman Lodge (COPCO)	3	36S	6E	4200
6	Kirk (COPCO)	1	33S	7E	4533
9	Quartz Mountain (COPCO)	33	37S	16E	5504
12	Yamsey (COPCO)	20	31S	11E	4600

LAKE COUNTY, GOOSE LAKE WATERSHEDS (11)

Goose Lake

NUMBER	NAME	SEC.	TWP.	RGE.	ELEV.
20G15	*Bear Flat Meadow	27	36S	19E	5900
20G8	Camas Creek	5	39S	21E	5720
20G11	*Cox Flat	16	37S	18E	5750
20G16	*Crane Mountain	13	40S	21E	6020
20H2	*Crowder Flat (Cal)	30	47N	11E	5200
20H3	*Dismal Swamp (Cal)	31	48N	16E	7000
20G6	Quartz Mountain	2	38S	16E	5320
20H1	*State Line (Cal)	21	48N	11E	5750
20G9	Strawberry	4	40S	16E	5600

Abert Lake

NUMBER	NAME	SEC.	TWP.	RGE.	ELEV.
20G15	*Bear Flat Meadow	27	36S	19E	5900
20G11	*Cox Flat	16	37S	18E	5750
20G14	*Finley Corrals	11	36S	16E	6000
20G4	Mill Creek	1	34S	17E	6200
20G6	Quartz Mountain	2	38S	16E	5320
20G10	*Sherman Valley	15	37S	21E	6600

Summer Lake

NUMBER	NAME	SEC.	TWP.	RGE.	ELEV.
20G2	Summer Rim	15	33S	16E	7200

Silver Lake

NUMBER	NAME	SEC.	TWP.	RGE.	ELEV.
21F12	Silver Creek	25 & 26	29S	13E	4900
20G13	*Sycan Flat	25	31S	14E	5500

Warner Lake

NUMBER	NAME	SEC.	TWP.	RGE.	ELEV.
20G8	Camas Creek	5	39S	21E	5720
20G16	*Crane Mountain	13	40S	21E	6020
20H3	*Dismal Swamp (Cal)	31	48N	22E	7000
19G1	*Hart Mountain	1	36S	25E	6350
20G10	*Sherman Valley	15	37S	21E	6600

Guano Lake

NUMBER	NAME	SEC.	TWP.	RGE.	ELEV.
19H1	Bald Mountain (Nev)	17	45N	21E	6720
19G1	*Hart Mountain	1	36S	25E	6350
19H4	*Mosquito Lake (Nev)	8	45N	19E	6000

HARNEY BASIN WATERSHEDS (12)

Silvies River - Silver Creek

NUMBER	NAME	SEC.	TWP.	RGE.	ELEV.
18F7	*Call Meadows	29	20S	33E	5340
19F2	Delintment Lake	28	19S	26E	5600
19F3	Emigrant Butte	14	21S	27E	5000
18F3	Idlewild Camp	33	20S	31E	5200
19E9	Izee Summit	28	16S	29E	5293
18F1	Rock Spring	23	18S	32E	5100
19F1	Snow Mountain	1	19S	26E	6300
19E7	Starr Ridge	20	15S	31E	5150
18F4	Stinking Water	33	21S	34E	4800

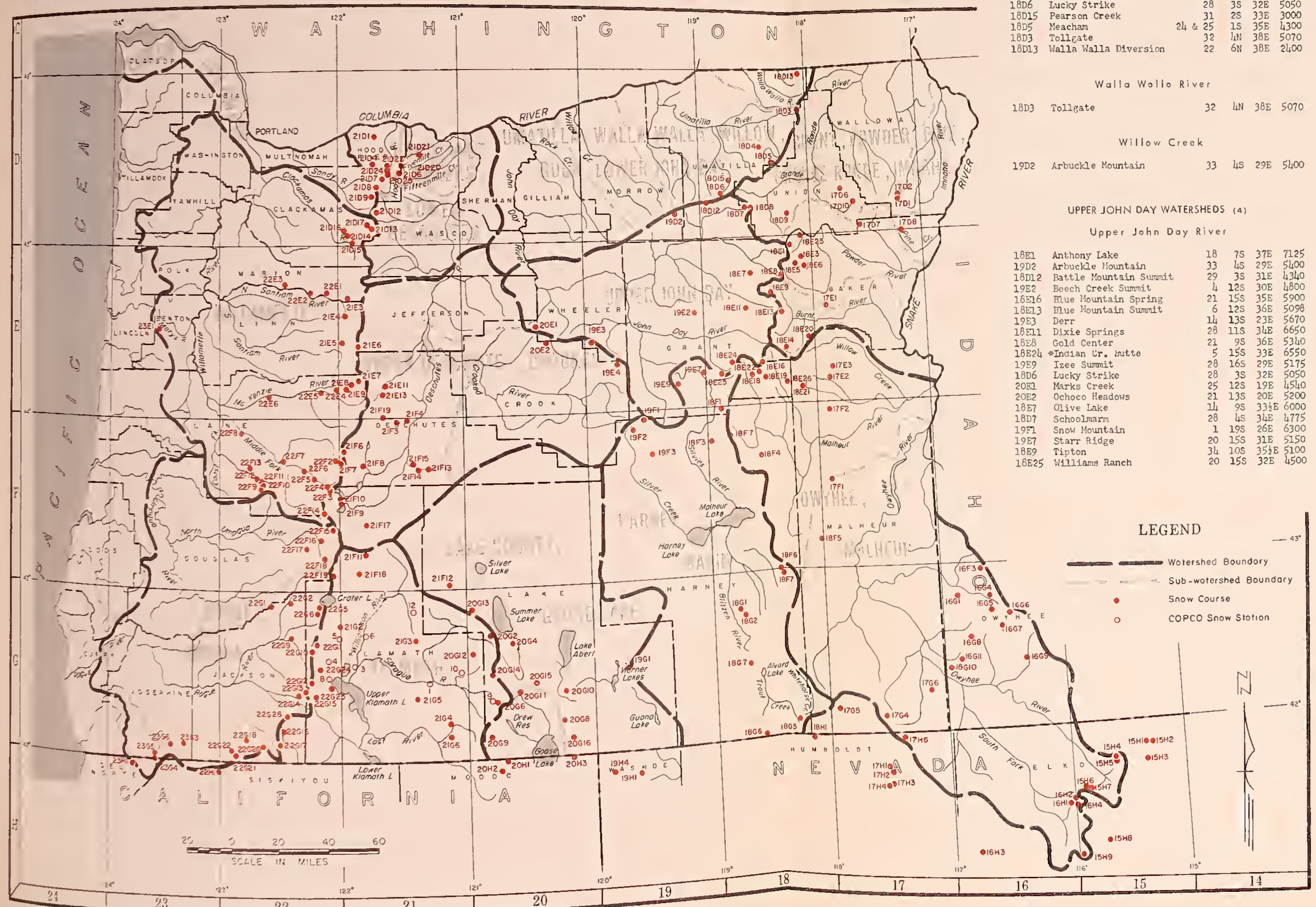
Donner Und Blitzen River

NUMBER	NAME	SEC.	TWP.	RGE.	ELEV.
18F6	*Buck Pasture (Riddle Cr.)	21	29S	35E	5700
18G2	Fish Creek	4	33S	33E	7650
19G1	*Hart Mountain	1	36S	25E	6350
18F7	*Jenkins Homestead	34	29S	35E	5800
18G1	Silvies	35	32S	32½E	6900
18G7	*"V" Lake	31	35½S	32½E	6600

Trout and Whitehorse Creeks

NUMBER	NAME	SEC.	TWP.	RGE.	ELEV.
18G6	*Denio Creek	14	41S	34E	6000
18H1	Disaster Peak (Nev)	8	47N	34E	6500
17G5	*Oregon Canyon	9	40S	40E	7240
18G5	*Trout Creek	10	41S	38E	7800

* AERIAL SNOW DEPTH GAGE



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The Following Organizations Cooperate in the Oregon Snow Survey Work

STATE
- Idaho Cooperative Snow Surveys
- Nevada Cooperative Snow Surveys
- Oregon Agricultural Experiment Station
- Oregon State Engineer and Corps of State Watermasters
- Oregon State Highway Engineers
- Soil Conservation Districts of Oregon

COUNTY
- Douglas County Water Resources Survey

FEDERAL
- Department of Agriculture
  - Cooperative Extension Service
  - Forest Service
  - Soil Conservation Service
- Department of Commerce
  - Weather Bureau
- Department of the Interior
  - Bonneville Power Administration
  - Bureau of Land Management
  - Bureau of Reclamation
  - Fish and Wildlife Service
  - Geological Survey
  - National Park Service
- Department of National Defense
  - Corps of Army Engineers

PUBLIC UTILITIES
- California-Pacific Utilities Company
- Pacific Power and Light Company
- Portland General Electric Company
- The California Oregon Power Company

MUNICIPALITIES
- City of Baker
- City of La Grande
- City of The Dalles
- City of Walla Walla

IRRIGATION DISTRICTS
- Associated Ditch Companies
- Central Oregon Irrigation District
- Deschutes County Municipal Improvement District
- East Fork Irrigation District
- Grants Pass Irrigation District
- Jordan Valley Irrigation District
- Lakeview Water Users, Incorporated
- Medford Irrigation District
- North Board of Control - Owyhee Project
- North Unit Irrigation District
- Ochoco Irrigation District
- Rogue River Valley Irrigation District
- South Board of Control - Owyhee Project
- Talent Irrigation District
- Vale-Oregon Irrigation District
- Warmsprings Irrigation District

PRIVATE ORGANIZATIONS
- Amalgamated Sugar Company
- The Crag Rats, Hood River, Oregon

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SOIL CONSERVATION SERVICE
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"The Conservation of Water begins with the Snow Survey"